BARBADOS.

DEPARTMENT OF AGRICULTURE.

REPORT

ON THE

SUGAR-CANE EXPERIMENTS

FOR THE SEASON BETWEEN

1921—1923.

PARTS I & II

Manurial Experiments with Sugar-cane.

PART III

Experiments with Varieties of Sugar-cane.

BY

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J. P. BALLOU, B.Sc., M.A., F.I.C., F.C.S.,
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CONDUCTED IN BARBADOS DURING THE SEASON 1921-1923.

Director of Agriculture	J. R. BOVELL, I.S.O., F.C.S.
Assistant Director of Agriculture	B. A. BOURNE, B.SC.
Assistant in charge of Sugar-cane Experiments ...	M. O. PROVERBS.
First Field Assistant	C. O. HAYNES.
Second Field Assistant	C. B. FOSTER.
Chief Clerk	H. O. RAMSEY.
Second Clerk	G. D. RAMSEY.
Third Clerk	B. A. NICCOLLS.

Island Professor of Chemistry and Agricultural Science	J. P. D'ALBUQUERQUE, M.A., F.I.C., F.C.S. (London.)
Assistant to the Professor of Chemistry	R. R. HALL, B.A.
Laboratory Assistant	F. HUTCHINS.
First Analytical Assistant	H. A. JONES.
Second Analytical Assistant	C. ST. ALLEYNE.
Clerk	C. G. HUMPHREY

The experiments are described in three parts, viz:—

Part I – Composition of Barbados rainfall.

Part II – Manurial and other experiments with sugar-canes.

Part III—Experiments with varieties of sugar-cane.

EXPLANATION OF TERMS USED IN THIS REPORT.

Per cent. by number of rotten canes is the number of rotten canes in 100 canes good and rotten).

Sp. Gr. $\frac{30°C.}{16·6°C.}$ is the weight of a given volume of juice at a temperature of 30° Centigrade divided by the weight of an equal volume of water at a temperature of 16·6° Centigrade. A gallon of water at 16·6° Centrigrade (i.e. 62° Fahrenheit) weighs 10 lb.; the Sp. Gr. $\frac{30°C}{16·6°C}$ therefore serves to ascertain the volume of the juice from its weight or *vice versa*.

Per cent. of juice by mill is the number of pounds of juice expressed from 100 lb. of canes.

Quotient of purity is the number of pounds saccharose (cane sugar) in 100 lb. of the total solids in the cane juice.

Saccharose is the chemical name for pure cane sugar. It is the same as sucrose. Refined cane sugar is almost pure saccharose, containing when deprived of traces of water nearly 100 per cent. of saccharose.

Muscovado yield is the amount of muscovado sugar theoretically obtainable from the total saccharose in the juice estimated in tons. It is assumed that the juice has a high quotient of purity and will yield 80 per cent. of its saccharose as muscovado sugar.

The quotient of purity and the glucose ratio of a sample of juice influence greatly the recovery of marketable sugar. With a high quotient of purity and low glucose, a ratio common in the juice of the best varieties of West Indian sugar-cane, it is possible on a well worked muscovado estate with a steam pan and filter press to recover 80 per cent. of the weight of saccharose as marketable muscovado sugar, and in certain of the tables the muscovado yield is calculated on this basis. The recovery is less if the purity is lower and the glucose ratio higher, as is the case in immature canes, or in mature canes of some varieties or in canes over-matured.

PART I.

COMPOSITION OF BARBADOS RAINFALL.

The rainfall at Dodds was measured in the usual manner and fortnightly samples were analysed at the Government Laboratory. The amount, distribution and composition of the rainfall from December 1921 to May 1923 are given below. The total amount analysed was 56·68 inches and supplied approximately 151 pounds of chlorine and 6·952 pounds of nitrogen per acre.

RAINFALL.

Amount, Distribution and Composition of the Rainfall at Dodds Botanic Station.

	Fall.		Parts per million of			
	Days.	Inches.	Chlorine.	Nitrogen as Ammonia.	Nitrogen as Nitrate.	Nitrogen Total.
December 1921 ..	18	3·33	10·0	·061	·418	479
January 1922 ...	15	1·59	15·0	·069	·491	560
February „ ..	22	3·51	19·0	·077	·829	·906
March „ ...	13	3·24	13·0	·069	·573	·642
April „ ...	9	·92	20·0	·085	·771	·856
May „ ...	7	·57	23·0	·174	1·556	1·730
June „ ..	15	3·52	12·0	·030	·220	·250
July „ ...	23	3·63	13·0	026	·473	·499
August „ ...	25	4·33	8·0	·038	·210	248
September „ ..	19	11·84	6·0	·165	·543	·708
October „ ..	15	2·61	6 5	·091	·452	·543
November „ ..	17	5·04	7·0	·012	·139	·151
December „ ..	13	3·58	13·0	·033	·164	·197
January 1923 ..	17	3·40	19·5	·046	·201	·247
February „ ...	14	2·05	16·5	·049	·536	585
March „ ...	13	1·54	25·0	·082	1·022	1·104
April „ ..	11	1·12	21·0	·119	·984	1·103
May „ ...	6	·86	17·0	·152	1 281	1·433
	272	56·68				

TABLE I. RAINFALL AT MANURIAL AND VARIETY EXPERIMENT STATIONS FROM DECEMBER, 1921 TO MAY, 1923.

Estates.	Height above sea level.	December, 1921.		January, 1922.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		January, 1923.		February.		March.		April.		May.		Total.	
		Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
Dodds ...	210	18	3·33	15	1·59	22	3·51	13	3·24	9	0·92	7	0·57	15	3·52	23	3·63	25	4·33	19	11·84	15	2·61	17	5·04	13	3·58	17	3·40	14	2·05	13	1·54	11	1·12	6	0·86	272	56·68
Hampton ...	103	11	3·26	11	1·89	18	3·31	7	2·83	5	0·58	3	0·83	3	0·83	14	3·30	14	4·36	17	10·31	10	2·14	13	4·07	10	2·27	10	2·32	10	1·75	10	1·35	5	1·06	4	0·90	175	47·36
Sunbury ...	160	14	3·59	13	2·04	18	4·20	8	2·42	7	0·97	4	0·68	12	4·56	17	3·61	19	4·92	18	11·19	14	2·61	15	4·52	14	2·82	13	2·56	11	1·92	15	1·46	14	1·65	9	0·84	235	56·56
Carrington ...	110	15	3·31	15	2·19	20	3·79	10	3·19	6	0·64	8	0·98	13	4·26	19	3·59	19	5·02	22	10·30	14	2·49	16	4·31	10	2·23	13	2·78	11	2·36	18	1·60	10	1·41	10	0·89	244	55·29
Brighton ...	271	11	3·75	10	2·21	19	5·07	6	3·76	5	0·57	5	0·73	13	4·95	12	3·38	18	4·98	15	11·08	5	2·74	12	5·09	7	2·90	10	2·03	8	1·84	9	1·69	8	1·59	7	0·96	180	59·32
Hannays ...	183	12	3·06	11	2·30	15	3·88	8	4·11	5	0·68	6	0·56	10	4·01	13	3·24	13	4·59	14	8·26	9	2·03	12	3·87	8	2·62	13	2·79	8	2·24	7	1·12	9	1·45	6	0·73	179	51·54
Coverley ...	254	10	3·40	12	2·04	14	3·75	1	2·67	7	0·93	3	0·18	13	4·06	14	4·67	15	6·25	13	9·96	10	2·86	11	5·58	9	2·88	10	2·57	7	2·03	5	1·06	8	1·53	4	0·32	177	56·74
Waterford ...	186	12	2·46	12	1·77	20	3·01	2	2·57	5	0·63	3	0·47	12	4·18	16	2·98	16	4·62	16	7·46	11	4·21	10	3·16	10	1·79	11	1·15	12	1·14	15	0·90	10	1·26	3	0·35	202	44·11
Pickerings ...	71	15	3·18	11	1·69	16	2·52	8	1·58	6	1·41	7	0·62	16	5·87	17	4·08	15	4·18	20	9·21	10	2·04	15	7·19	12	4·39	14	2·25	16	2·58	8	1·03	6	0·80	6	0·75	217	55·37
Clifton Hall ...	702	7	3·71	11	2·40	15	5·29	7	3·42	11	1·95	9	0·72	13	4·62	15	4·47	21	6·56	18	11·62	12	2·04	16	8·09	10	4·03	16	2·99	10	1·93	11	2·10	7	1·31	6	0·59	215	67·84
Henley ...	553	18	4·34	16	2·26	22	6·51	17	4·31	9	1·84	13	0·95	17	4·87	22	5·08	27	6·13	22	12·17	12	4·60	19	8·21	11	4·45	20	3·82	12	2·68	13	2·46	10	1·25	6	1·48	280	77·41
Lemon Arbor	720	21	4·58	11	2·76	20	7·18	1	4·67	9	2·13	7	1·48	10	4·92	20	6·14	22	8·13	17	15·08	11	6·37	13	9·70	13	5·00	18	3·71	12	3·11	14	2·12	8	1·78	3	1·13	238	89·99
Vaucluse ...	731	13	3·80	10	2·38	22	5·86	9	4·04	7	1·92	4	0·52	12	4·96	15	4·17	18	5·83	17	10·73	9	3·82	16	10·11	11	3·61	18	3·44	9	2·40	12	2·22	8	1·18	3	0·41	213	71·40

PART II.

MANURIAL AND OTHER EXPERIMENTS WITH THE SUGAR-CANE.

The manurial experiments were carried out in Summervale field at Dodds which is situated in the parish of St. Philip, ten miles from Bridgetown at an elevation of 210 feet above the sea-level. They consist of twenty-six plots of one-twentieth of an acre each. The rows of canes are six feet apart and the clumps of canes six feet apart in the rows. Each plot, therefore, consists of sixty clumps of canes and the experiments cover an area of approximately 1½ acres.

The chemical analysis of the soil, which is what is called in Barbados a "Black Soil," has been given repeatedly in previous reports so that it is omitted this year. It may, however, be stated that this soil when first analysed many years ago contained a comparatively moderate proportion of calcium carbonate and was poor in nitrogen, phosphoric acid and potash, in which respect it is distinctly below the average of Barbados soils.

Soon after the canes were cut in 1921, the old stools were dug out, the cane holes dug two feet square, and where possible, one foot deep and all larvae, pupae and imagoes of the root borer (*Diaprepes abbreviatus*, Linn.) and the brown hardback (*Phytalus smithi*, Arrow) found, were killed. The plots were then planted with woolly pyrol, which was pulled up on September 2 and placed in the cane holes. On the woolly pyrol, after it had withered, farmyard manure was applied at the rate of twenty tons per acre and the whole covered with the soil obtained from a cane hole dug on the north side of the manure. At the same time an additional twenty tons of farmyard manure were applied per acre to Plot B. 1, making a total of forty tons to that plot. The whole field was then subsoiled in each bank in a northerly and southerly direction, and planted on November 19, 1921 with top cuttings of the B.H. 10 (12), after they had been soaked in Bordeaux mixture for ten minutes.

WEATHER.

As the rainfall for November and December 1921 and January 1922 was on the whole about the average for previous years, the sugar canes on the experiment plots as a whole germinated satisfactorily, but as the rainfall for the island for 1922 and the first five months in 1923 was below the average, the canes in some districts suffered from the drought that prevailed. In one instance, we understand in a very dry district, some of the canes yielded only about five tons per acre. In higher levels where the rainfall was greater the canes rapidly improved during the latter part of the year and in some instances very satisfactory returns were obtained.

ANALYSIS OF MANURE.

The following is the analysis of a sample of the farmyard manure applied to Summervale field in September, 1921, while that field was in the course of preparation.

Moisture	29·15
*Organic matter, etc.	25·91
Insoluble siliceous mattter	15·46
†Phosphoric anhydride	0·61
‡Alkaline salts, Lime, Magnesia, etc.	28·87
	100·00
*Containing nitrogen	0·42
Equal to ammonia	0·51
†Equal to tricalcium phosphates	1·33
‡Containing potash	0·37
Equal to sulphate of potash	0·68

Twenty tons of this manure supplied per acre 188 lb. of nitrogen, 273 lb. of phosphoric anhydride (equal to 596 lb. tricalcium phosphate) and 166 lb. potash.

APPLICATION OF MANURES.

The experiments were directed as in former years with a view of ascertaining the effect of the application of farmyard manure in ordinary quantity, and in double the ordinary quantity; also of nitrogen, of phosphates, and of potash, upon the industrial yields of the sugar cane.

The chemical fertilizers were applied as follows:—

Phosphates and potash on January 30 and nitrogen on February 13, 1922.

The second application of phosphates, potash and nitrogen was made on June 15, 1922.

The following table gives the composition per cent. of the chemical manures employed on the manurial experiments, 1921—1923 :—

	Nitrogen.	Phosphates.			Potash.
		Soluble	Reverted.	Insoluble	
Sulphate of ammonia	20·78	...	...	...	...
Nitrate of Soda	15·90	...	...	...	...
Dried blood ...	12·98	...	...	...	...
Superphosphate of lime ..	..	28·57	8·74	.	.. ...
Basic Slag ..	...	....	...	37·56	
Sulphate of potash ..			...	...	51·92

Wherever in this report quantities of canes or sugar or of manure applied are mentioned, per acre is understood unless stated to the contrary.

The experiments may be divided as follows :—

Farmyard manure only, 20 tons.
Farmyard manure, 20 tons extra.

Nitrogen series.
- Minerals only.
- Minerals and nitrogen as sulphate of ammonia.
- Minerals and nitrogen as nitrate of soda.
- Minerals and nitrogen as dried blood.

Phosphate series.
- Nitrogen and potash only.
- Nitrogen, potash and superphosphates.
- Nitrogen, potash and basic slag.

Potash series.
- Nitrogen and phosphates only.
- Nitrogen, phosphate and potash.

Owing to the low fertility of Summervale field which obtained in 1885 when the manurial experiments were first started, the whole of the plots have received annually farmyard manure at the rate of twenty tons (approximately 800 cubic feet) per acre every other year for the past thirty-two years. In addition one plot received an extra twenty tons of farmyard manure, equal to forty tons per acre every other year. In the nitrogen series, in addition to the twenty tons of farmyard manure each plot received eighty pounds of assimilable phosphates as superphosphate of lime and sixty pounds of potash as sulphate of potash. One plot received nothing further, and the remaining plots varying quantities of nitrogen as sulphate of ammonia, nitrate of soda and dried blood. In the phosphate series, in addition to the twenty tons of farmyard manure, each plot received sixty pounds of nitrogen as sulphate of ammonia and sixty pounds of potash as sulphate of potash. One plot received nothing further. Five ~~Four~~ plots received varying quantities of phosphates as superphosphate of lime, and two plots received basic slag, one at the rate of eighty pounds and the other at the rate of 100 pounds of phosphate per acre. In the potash series, in addition to the twenty tons of farmyard manure, each plot received eighty pounds of assimilable phosphates as superphosphate of lime and sixty pounds of nitrogen as sulphate of ammonia. One plot received nothing further. The remaining plots received varying quantities of potash as sulphate of potash.

The results are given in Tables II to V. As will be seen therefrom, the results again this year from a number of the plots are so different from those of previous years before the advent of the root borer (*Diaprepes abbreviatus*, Linn) and the brown hardback (*Phytalus smithi, Arrow*) which are now doing so much injury to the sugar canes (not only in the district where the manurial experiments are carried on but in many other districts of the island) and are so conflicting that it is impossible, in many instances, to draw any conclusions from them. To give a few instances, it may be mentioned that in the nitrogen series Plot A. 2 which received 80 lb. of phosphates as superphosphate of lime, 60 lb. of potash as sulphate of potash but no nitrogen, gave a greater yield than plots A. 3, A . 4 and A. 6 which received similar quantities of phosphates and potash, but in addition nitrogen as sulphate of ammonia at the rate of 40 lb., 60 lb. and 80 lb. per acre respectively. To give another instance, in the nitrogen series B.3 and A. 5 received each in January 80 lb. of phosphates as superphosphate of lime, 60 lb. of potash as sulphate of potash and 15 lb. of nitrogen as sulphate of ammonia. In June Plots B. 3 and A. 5 received respectively in addition 25 lb. and 45 lb. of nitrogen as sulphate of ammonia. In this case B. 3 which received 40 lb. of nitrogen gave 2 790 lb of saccharose per acre more than A. 5 which received 60 lb. of nitrogen per acre.

To give another instance, Plots B.2 and B. 6 each received in January 80 lb. of phosphates as superphosphate of lime, and 60 lb. potash as sulphate of potash. In addition plot B. 2 received 40 lb. of nitrogen and plot B. 6, 60 lb. nitrogen as dried blood also in January. In this case plot B. 6 with its 60 lb. of nitrogen only yielded 7,646 lb. of saccharose per acre while B. 3 with its 40 lb. of nitrogen yielded 9,586 lb. of saccharose per acre or a difference of 1,940 lb. per acre in favour of the smaller dressing of nitrogen.

In the phosphate series, plots B.9 and A.9 received 60 lb. of nitrogen as sulphate of ammonia per acre, 15 lb. in January and 45 lb. in June, and 60 lb. potash as sulphate of potash in January. In addition plot B.9 received 120 lb. of phosphates as superphosphate of lime in January while plot A. 9 received 60 lb. in January and 60 lb. in June, yet plot A. 9 yielded 2,459 lb. saccharose per acre more than plot B. 9.

In the potash series, plots B. 10 and A. 5 both received 60 lb. of nitrogen as sulphate of ammonia per acre and 80 lb. of phosphate as superphosphate of lime. Plot B. 10 received nothing further while plot A. 5 received in addition 60 lb. potash as sulphate of potash per acre in January. In this case the plot to which no potash had been applied for thirty-two years yielded 1,659 lb. saccharose per acre more than the plot to which potash as sulphate of potash at the rate of 60 lb. per acre had been applied for the same period.

Before the plots to which the different manures were applied were reaped, certain of the canes were seen to be withering amounting altogether to four stools. These were cut and weighed separately and are not included in the weights given in Tables II to V. From around and in the basal portions of these four stools, ninety-two larvae of the root borer and two larvae of the brown hardback were obtained. As soon as the remainder of the plots were reaped the basal portions of each stool were also dug up, cut into pieces and the larvae, where present in or around such basal portions, killed. At the same time, the old cane holes were dug out two feet square and where possible, one foot deep, and all the larvae found, killed. The numbers of the root borer and the brown hard back larvae so found are given in Table VI.

The numbers of larvae of the root borer and the brown hardback found in each plot for the year under review, and also for the years 1917—1921 are also given in Table VI. As will be seen from that table, the number of larvae, pupae and imagoes are very much less than for the seasons 1915—17 and 1917—19, but they are 256 more than for the season 1919—21.

TABLE II.

PLANT CANES.

DODLS: SUMMERVALE FIELD.

Nitrogen Series.

Farmyard manure, 20 tons.
Nitrogen.
Phosphate as superphosphate, 80 lb. in Janaury.
Potash as sulphate, 60 lb. in January.

Number of Plots.		Applied in 1922.		No of Canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. of Juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Difference by manuring in			*Diapreps abbreviatus* per acre.	*Phytalus smithi* per acre.	Total *Diapreps abbreviatus* and *Phytalus smithi* per acre.
										Sp Gr. 30° C / 16·6° C	Lb. per gallon of				Glucose ratio.			Produce, tons per acre	Canes, tons per acre.	Saccharose, lb. per acre.			
		January.	June		Produce.	Cane Tops.	Canes.				Saccharose.	Glucose.	Solids not Sugar.	Quotient of Purity.									
		lb.	lb.																				
A 1	No chemical manure ...	...	...	19,756	31·92	4·42	27·50	2·67	49·50	1·0969	2·49	·036	·104	94·68	1·4	2,780	6,922	...	...	...	2,508	1,188	3,696
B 1	Farmyard manure 20 tons extra	...	...	19,919	37·09	4·69	32·40	2·57	57·25	1·0897	2·25	·049	·141	92·21	2·2	3,813	8,579	+ 5·17	+ 4·90	+1,657	1,699	931	2,630
A 2	No nitrogen	...	...	20,964	33·46	4·59	28·87	4·78	56·00	1·0933	2·36	·045	·135	92·91	1·9	3,313	7,819	+ 1·54	+ 1·37	+ 897	2,858	459	3,317
A 3	40 lb. nitrogen as sulphate of ammonia ..	...	40	20,443	32·79	5·70	27·09	3·17	57·50	1·0951	2·38	·038	·162	92·25	1·6	3,186	7,583	+ ·87	− ·41	+ 661	2,527	670	3,197
A 4	60 lb. nitrogen as sulphate of ammonia ...	...	60	20,662	33·66	5·17	28·49	1·40	55·00	1·0933	2·37	·040	·130	93·31	1·7	3,210	7,608	+ 1·74	+ ·99	+ 686	1,770	493	2,263
A 6	80 lb. „ „	...	80	19,624	34·23	6·85	27·38	2·58	57·50	1·0933	2·41	·035	·095	94·88	1·5	3,226	7,775	+ 2·31	− ·12	+ 853	1,584	814	2,398
B 3	40 lb. „ „	15	25	21,525	33·59	4·02	29·57	2·38	68·75	1·0933	2·39	·042	·108	94·10	1·8	4,164	9,952	+ 1·67	+ 2·07	+3,030	2,630	47	2,677
A 5	60 lb. „ „	15	45	20,113	30·30	4·25	26·05	2·61	56·00	1·0951	2·40	·038	·142	93·02	1·6	2,984	7,162	− 1·62	− 1·45	+ 240	1,164	297	1,461
B 4	60 lb. nitrate of soda ...		60	20,503	35·62	5·95	29·67	2·81	58·50	1·0906	2·35	·045	·075	95·14	1·9	3,566	8,380	+ 3·70	+ 2·17	+1,453	1,590	237	1,827
B 7	40 lb. dried blood ...	15	25	19,063	38·19	6·75	31·44	6·59	61·00	1·0906	2·26	·063	·147	91·50	2·8	3,939	8,902	+ 6·27	+ 3·94	+1,980	1,644	479	2,123
B 5	60 lb. „ „	15	45	21,940	38·12	5·35	32·77	8·12	58·00	1·0888	2·27	·042	·108	93·80	1·9	3,910	8,876	+ 6·20	+ 5·27	+1,954	1,918	457	2,375
B 2	40 lb. „ „	40	...	20,768	38·55	4·60	33·95	2·97	59·00	1·0906	2·33	·046	·094	94·33	2·0	4,114	9,586	6·68	+ 6·45	+2,664	1,936	858	2,794
B 6	60 lb. „ „	60	...	18,863	34·34	5·57	28·77	3·14	56·50	1·0906	2·29	·030	·150	92·71	1·3	3,339	7,646	2·42	+ 1·27	+ 724	1,778	247	2,025

TABLE III. PLANT CANES.

DODDS:—SUMMERVALE FIELD.

Phosphate Series.

Farmyard manure, 20 tons.
Phosphate.
Nitrogen as sulphate of ammonia, 15 lb. in January, 45 lb. in June.
Potash as sulphate, 60 lb. in January

Number of plots.		Applied in 1922. January.	Applied in 1922. June.	No. of canes per acre.	Weight in tons per acre. Produce.	Weight in tons per acre. Cane Tops.	Weight in tons per acre. Canes.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30° C./16·6° C.	Normal Juice. Lb. per gallon of Saccharose.	Normal Juice. Lb. per gallon of Glucose.	Normal Juice. Lb. per gallon of Solids not sugar.	Normal Juice. Quotient of purity.	Normal Juice. Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Difference by manuring in. Produce, tons per acre.	Difference by manuring in. Canes, tons per acre.	Difference by manuring in. Saccharose, lb. per acre.	*Diaprepes abbreviatus* per acre.	*Phytalus smithi* per acre	Total *Diaprepes abbreviatus* and *Phytalus smithi* per acre.
		lb.	lb.																				
A 1	No chemical manure ..	...	..	19,756	31·92	4·42	27·50	2·67	49·50	1·0969	2·49	·036	·104	94·68	1·4	2,780	6,922	...	...	...	2 508	1,188	3,696
B 1	Farmyard manure 20 tons extra ...	...	...	19 919	37·09	4·69	32·40	2·57	57·25	1·0897	2·25	·049	·141	92·21	2·2	3,813	8,579	+ 5·17	+ 4·90	+ 1,657	1,699	931	2,630
A 7	No phosphate ...	...	...	23,317	31·71	6·10	28·61	2·18	58·00	1·0915	2·35	·041	·099	94·38	1·7	3,405	8,002	+ 2·79	+ 1·11	+ 1,080	1,419	814	2,233
B 8	40lb phosphate as superphosphate ...	40	...	21,061	37 67	6·77	30·90	1·38	56·50	1 0906	2·28	·063	·127	92·31	2·8	3,586	8,176	+ 5·75	+ 3·40	+ 1,254	1,358	370	1,728
A 5	80 lb.	80	...	20,113	30·30	4·25	26·05	2·61	56·00	1·0951	2·40	·038	·142	93·02	1·6	2,984	7,162	- 1·62	- 1·15	+ 240	1,164	297	1,461
B 9	120 lb. ...	120	...	18,066	34·04	5·10	28·94	4·83	56·00	1·0906	2·31	·074	·086	93·52	3·2	3,329	7,690	+ 2·12	+ 1·44	+ 768	1,579	338	1,717
A 8	80 lb.	40	40	21,950	33·47	5·10	28·37	1·95	56·50	1·0915	2·37	·041	·079	95·18	1·7	3,290	7,797	+ 1·55	+ ·87	+ 875	1,495	498	1,993
A 9	120 lb.	60	60	21,681	40·49	6·44	34·07	2·09	62·00	1·0906	2·34	·050	·080	94·74	2·1	4,337	10,149	+ 8·57	+ 6·57	+ 3,227	1,840	328	2,168
B 13	80 lb. .. Basic slag	80	...	26,882	51·08	6·52	44·56	4·46	58·50	1·0879	2·21	·045	·105	93·72	2·0	5,368	12 024	+19·16	+17·06	+ 5,102	2,148	1,452	3,600
A 13	100 lb. ... „ ..	100	..	19,883	43·03	5·69	37·34	2·38	60·50	1·0942	2·37	·063	·127	92·58	2·7	4,624	10,959	+11·11	+ 9·84	+ 4,037	2,157	158	2,315

TABLE IV.

PLANT CANES.

DODDS : SUMMERVAL FIELD.

Potash Series.

{ ***Farmyard manure,*** 20 tons.
Potash.
Nitrogen as sulphate of ammonia, 15 lb. in January, 45 lb. in June.
Phosphate as superphosphate, 80 lb. in January.

Number of plot.		Applied in 1922.		No. of canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Difference by manuring in			*Diaprepes abbreviatus* per acre.	*Phytalus smithi* per acre.	Total *Diaprepes abbreviatus* and *Phytalus smithi* per acre.
		January.	June.		Produce.	Cane Tops.	Canes.			Sp. Gr. 30° C. / 16·6 °C.	Lb. per gallon of: Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.			Produce, tons per acre	Canes, tons per acre.	Saccharose, lb. per acre.			
1	No chemical manure ..	...	...	19,756	31·92	4·42	27·50	2·67	49·50	1·0969	2·49	·036	·104	94·68	1·4	2,780	6,922	...	...	...	2,508	1,188	3,696
B 1	Farmyard manure 20 tons extra	..	...	19,919	37·09	4·69	32·40	2·57	57·25	1·0897	2·25	·049	·141	92·21	2·2	3,813	8,579	+5·17	+4·90	+1,657	1,699	931	2,630
B 10	No potash	...	...	23,683	37·16	4·72	32·44	2·30	57·00	1·0897	2·32	·054	·066	95·08	2·3	3,802	8,821	+5·24	+4·94	+1,899	2,563	475	3,038
A 10	40 lb. of potash as sulphate ...	40	...	20,193	40·16	5·40	34·78	2·00	56·50	1·0924	2·30	·050	·160	91·64	2·2	4,027	9,262	+8·24	+7·28	+2,340	1,940	328	2,268
A 5	60 „ „ „ ...	60	...	20,133	30·30	4·25	26·05	2·61	56·00	1·0951	2·40	·038	·142	93·02	1·6	2,984	7,162	-1·62	-1·45	+240	1,164	297	1,461
A 11	80 „ „ „ ...	80	...	19,654	38·45	5·55	32·92	1·94	63·00	1·0924	2·39	·046	·074	95·22	1·9	4,250	10,158	+6·53	+5·42	+3,236	2,398	493	2,891
A 12	100 „ „ „ ...	100	...	18,858	37·74	4·62	33·12	3·39	58·00	1·0924	2·36	·045	·105	94·02	1·9	3,940	9,298	+5·82	+5·62	+2,376	2,557	868	3,425
B 12	60 „ „ „ ...	30	30	19,474	37·40	5·50	31·90	·94	56·00	1·0888	2·29	·076	·054	94·63	3·3	3,675	8,416	+5·48	+4·40	+1,494	1,210	662	1,872
B 11	80 „ „ „ ...	40	40	19,044	37·98	6·58	31·42	3·23	56·50	1·0924	2·37	·074	·066	94·42	3·1	3,638	8,622	+6·06	+3·92	+1,700	1,783	488	2,271

TABLE V. SUMMARY OF RESULTS OBTAINED IN SUMMERVALE FIELD AT DODDS FOR THE SEASON ENDED 1923.

MANURES. Name.	When applied.	Quantity applied.	Muscovado sugar per acre.	Increase or decrease on no-manure.	Molasses from increase or decrease of muscovado sugar.	Gain or loss.	Value of manure applied.	Cost of manufacture of incremental sugar or amount deducted where there was a loss as compared with the control plot.	Gain or loss by manuring.	*Diaprepes abbreviatus* per acre.	*Phytalus smithi* per acre.	Total *Diaprepes abbreviatus* and *Phytalus smithi* per acre.
		Tons.	lb.	lb.	gals.	$ c.	$ c.	$ c.	$ c.			
Farmyard manure (control plot) ..	...	20	5,538	...	...	...	...	...	...	2,508	1,188	3,696
" " (20 tons extra) ..	...	40	6,863	+1,325	+ 59	82.46	14.64	6 23	+ 61.59	1,699	931	2,630
NITROGEN SERIES.												
Farmyard manure minerals and no nitrogen	...		lb. ...	6,255	+ 717	+ 32	44.61	7.15	3.37	+ 34.12	2,858	459	3,317
40 lb. of Nitrogen as sulphate of ammonia	June ...	40	6,063	+ 528	+ 23	32.73	14.93	2.48	+ 15.32	2,527	670	3,197
60 " " "	" ...	60	6,086	+ 548	+ 24	34 00	18.82	2.58	+ 12.60	1,770	493	2,263
80 " " "	" ...	80	6,220	+ 682	+ 30	42.35	22.71	3.21	+ 16.43	1,584	814	2,398
40 " " "	Jany. 15 / June 25	40	7,962	+2,424	+108	150.87	14.93	11.39	+124.55	2,630	47	2,677
60 " " "	Jany. 15 / June 45	60	5,730	+ 192	+ 9	12.06	18.82	.90	- 7.66	1,164	297	1,461
60 " nitrate of soda ...	June ...	60	6,704	+1,166	+ 52	72.58	22.89	5.48	+ 44.21	1,590	237	1,827
40 " dried blood ...	Jany. 15 / June 25	40	7,122	+1,584	+ 71	98.69	14.93	7.44	+ 76.32	1,644	479	2,123
60 " " ...	Jany. 15 / June 45	60	7,101	+1,563	+ 70	97.37	18.82	7.35	+ 71.20	1,918	457	2,275
40 " " ...	January	40	7,669	+2,131	+ 95	132.64	14.93	10.02	+107.69	1,936	858	2,794
60 " " ...	January	60	6,117	+ 579	+ 26	36.09	18.82	2.72	+ 14.55	1,778	247	2,025
PHOSPHATE SERIES.												
Farmyard manure, potash, nitrogen and no phosphate	...	...	6,402	+ 864	+ 39	+ 53.90	17.56	4.06	+ 32.28	1,419	814	2,233
40 lb. phosphate as superphosphate ...	January	40	6,541	+1,003	+ 45	+ 62.50	19.21	4.71	+ 38.58	1,358	370	1,728
80 lb. " " ...	"	80	5,730	+ 192	+ 9	+ 12.06	20.86	90	- 9.70	1,164	297	1,461
120 lb. " " ...	"	120	6,152	+ 614	+ 27	+ 38.13	22.51	2.89	+ 12.73	1,379	338	1,717

TABLE V.– *Concluded.* SUMMARY OF RESULTS OBTAINED IN SUMMERVALE FIELD AT DODDS FOR THE SEASON ENDED 1923.

MANURES.			Muscovado sugar per acre.	Increase or decrease on no-manure.	Molasses from increase or decrease of muscovado sugar	Gain or loss.	Value of manure applied.	Cost of manufacture of incremental sugar or amount deducted where there was a loss as compared with the control plot.	Gain or loss by manuring.	*Diaprepes abbreviatus* per acre.	*Phytalus smithi* per acre.	Total *Diaprepes abbreviatus* and *Phytalus smithi* per acre.
Name.	When applied.	Quantity applied.										
		lb.	lb.	lb.	gals.	$ c.	$ c.	$ c.	$ c.			
PHOSPHATE SERIES.												
80 lb. phosphate as superphosphate ...	Jany. 40 / June 40	80	6,238	+ 700	+ 31	+ 43.52	20.86	3.29	+ 19.37	1,495	498	1,993
120 lb. „ „ ...	Jany. 60 / June 60	120	8,119	+2,581	+115	+160.64	22.51	12.13	+126.00	1,840	328	2,168
80 lb. „ basic slag ..	January	80	9,619	+4,081	+182	+254.01	20.86	19.18	+214.00	2,148	1,452	3,600
100 lb. „ „ ..	January	100	8,767	+3,229	+144	+201.00	21.69	15·18	+164.13	2,157	158	2,315
POTASH SERIES.												
Farmyard manure, nitrogen, phosphate and no potash	...	...	7,057	+1,519	+ 68	+ 94.62	13.73	7.14	+ 73.75	2,563	475	3,038
40 lb. potash as sulphate	January	40	7,410	+1,872	+ 84	+116.66	16.34	8·80	+ 91.52	1,940	328	2,268
60 lb. „ „	„	60	5,730	+ 192	+ 9	+ 12.06	17.65	·90	– 6.49	1,164	297	1,461
80 lb. „ „	„	80	8,126	+2,588	+116	+161.25	18.95	12.16	+130.14	2,398	493	2,891
100 lb. „ „	„	100	7,438	+1,900	+ 85	+118.34	20.26	8.93	+ 89.15	2,557	868	3,425
60 lb. „ „	Jany. 30 / June 30	60	6,733	+1,195	+ 53	+ 74.31	17.65	5.62	+ 51.04	1,210	662	1,872
80 lb. „ „	Jany. 40 / June 40	80	6,898	+1,360	+ 61	+ 84.75	18.95	6.39	+ 59.41	1,783	488	2,271

TABLE VI.—SHOWING THE NUMBER OF THE LARVAE OF THE ROOT BORER AND BROWN HARD-BACK FOUND IN EACH MANURIAL PLOT IN SUMMERVALE FIELD FOR THE FOUR SEASONS 1915-1917, 1917-1919, 1919-1921, AND 1921-1923.

Plots.	Root-borer and brown hard-back.				Plots.	Root-borer and brown hard-back.			
	1917.	1919.	1921.	1923.		1917.	1919.	1921.	1923.
A 1 ...	295	399	134	185	B 1 ..	443	212	171	134
A 2 ...	316	153	116	166	B 2 ...	404	254	102	138
A 3 ...	368	281	99	164	B 3 ...	771	330	92	140
A 4 ...	417	322	135	114	B 4 ...	607	261	94	96
A 5 ...	338	269	136	72	B 5 ...	460	238	88	113
A 6 ...	342	366	154	126	B 6 ...	507	283	80	97
A 7 ...	264	259	103	106	B 7 ...	402	275	92	102
A 8 ...	204	208	122	103	B 8 ...	376	269	63	104
A 9 ...	369	340	155	112	B 9 ...	79	465	95	83
A 10 ...	384	395	145	110	B 10 ...	101	330	88	145
A 11 ...	213	373	130	145	B 11 ..	119	303	79	109
A 12 ...	155	322	165	165	B 12 ...	95	240	90	158
A 13 ...	67	230	182	113	B 13 ...	131	243	83	149
	3,732	3,917	1,776	1,681		4,495	3,712	1,217	1,568

Total

1915—1917	...	8,227
1917—1919	...	7,629
1919—1921	...	2,993
1921—1923	...	3,249

As it may be of interest, we include Table VII showing the number of the root-borer and the brown hard-back, larvae and pupae collected in Lower Bay Tree and Summervale fields, the fields in which the manurial plots are carried on, from December 1921 to May 1923. As will be seen therefrom, 28,584 were collected from the two fields and as they contain nine acres the average is 3,176. As in the case of the root-borer and brown hard-back in the manurial plots, there has been a slight decrease of 351 of the pest as compared with the previous year.

TABLE VII.—SHOWING THE NUMBER OF IMAGOES, LARVAE, ETC. OF THE PHYTALUS SMITHI, ARROW, AND DIAPREPES ABBREVIATUS, LINN, COLLECTED ON AND AROUND BAY TREE AND SUMMERVALE FIELDS AT DODDS, THE FIELDS IN WHICH THE MANURIAL PLOTS ARE SITUATED, FROM DECEMBER 1921 TO MAY 1923.

Months.		Lower Bay Tree Field.					Summervale Field.				
		Phytalus Smithi.		*Diaprepes abbreviatus.*			*Phytalus Smithi.*		*Diaprepes abbreviatus.*		
		Imagoes.	Larvae.	Imagoes.	Larvae.	Egg batches.	Imagoes.	Larvae.	Imagoes.	Larvae.	Egg batches.
December	1921	783	...	...	...	...	...	...	...	...	...
January	1922	1,101	...	...	...	...	...	...	...	...	...
February	,,	663	...	...	...	...	...	...	...	...	...
March	,,	890	414	...	816	...	...	...	65	...	3
April	,,	396	...	...	...	...	...	...	57	2	8
May	,,	351	...	4	...	...	238	...	50	...	...
June	,,	208	...	...	...	...	1,808	...	3,243	...	566
July	,,	56	...	...	...	...	725	...	161	...	13
August	,,	312	...	4	...	...	924	...	298	...	9
September	,,	...	...	...	...	...	1,348	...	908	...	263
October	,,	64	...	...	...	...	1,389	...	670	...	210
November	,,	51	...	...	...	...	1,382	...	2	...	...
December	,,	35	...	...	...	...	1,503	...	...	...	...
January	1923	...	...	...	...	...	1,088	...	...	...	...
February	,,	...	...	...	...	...	429	...	...	...	...
March	,,	30	...	...	...	...	519	...	...	...	...
April	,,	74	...	...	...	...	1,154	...	...	...	...
May	,,	178	...	...	...	...	987	702	...	2,502	...
		5,192	414	8	816	...	13,494	702	5,454	2,504	1,072

It has been customary for some years to give an estimate of the loss sustained from the root-borer (*Diaprepes abbreviatus*, Linn) and the brown hard-back (*Phytalus smithi*, Arrow) in the manurial plots, but this year as only four stools were seen to be withering the number is too small on which to base a reliable estimate. However, Table VIII showing the loss sustained in Summervale for the seasons 1915-17, 1917-19, 1919-21 and 1921-23 is given.

TABLE VIII.—THE NUMBER OF ROOT-BORER AND BROWN HARD-BACK LARVAE DUG OUT OF THE MANURIAL EXPERIMENT PLOTS IN SUMMERVALE FIELD AND THE LOSS SUSTAINED PER ACRE FOR THE FOUR SEASONS, 1915—17, 1917—19, 1919—21, AND 1921—23.

Seasons.	No. of root-borer and brown hard-back larvae.	Estimated tons canes lost each season.	Value per acre at current price of sugar.
			$ c.
1915-17	8,227	6·99	45 99
1917-19	7,629	4·36	38 98
1919-21	2,993	2·08	13 89
1921-23	3,249	5·23	47 91

It may be mentioned that 347,225 larvæ and imagoes of the root-borer and the brown hard-back were collected on the lands of the Government Industrial Schools from December 1st, 1921, to April 30th, 1923. As there were sixty-three acres of canes this would be 5,512 per acre, and would amount to an increase of 25,199 of the pest as compared with the previous season.

During the year under review, experiments were carried out at Bulkeley, Bowmanston and Carrington plantations in conjunction with Mr. R. S. Cunliffe, B.Sc., of the Chilean Nitrate Committee, for the purpose of ascertaining the value of nitrapo as a fertilizer when compared with certain other chemical fertilizers separately and in combination. Owing to some misunderstanding, the experiment plots at Carrington were reaped without the canes being tested. The results for Bulkeley and Bowmanston are given in Tables IX to XI.

As will be seen therefrom, on the average for the two estates, the plots to which nitrapo and superphosphate were applied gave a yield of 2,342 lb. of saccharose per acre more than the control plot. When the nitrapo was applied alone, the increased yield over the control plot was only 1,585 lb. In the case where nitrate of soda was applied alone the increase over the control plot was 2,210 lb., but where nitrate of soda and superphosphate were applied the increase over the control plot was 1,899 lb.

TABLE IX.—NITRAPO AND OTHER MANURIAL EXPERIMENTS CONDUCTED WITH PLANT SUGAR CANES OF BA 6032 ON CLARKE VALLEY FIELD AT BULKELEY PLANTATION ON BEHALF OF MR. R. S. CUNLIFFE, B.Sc., OF THE CHILEAN NITRATE COMMITTEE, 1921–1923.

		Nitrogen.	Phosphates.	Potash.		No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30° C. / 16·6° C.	Normal Juice. lb. per gallon of Saccharose.	Normal Juice. lb. per gallon of Glucose.	Normal Juice. lb. per gallon of Solids not sugar.	Normal Juice. Quotient of purity.	Normal Juice. Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of Marasmius sacchari, Wakker.
Plot I	Nitrapo 201 lb. January	30		32·79														
	Superphosphates 178 lb. January		60		Series i	15,120	35·65	2·51	62·50	1·0853	2·12	·096	·104	91·38	4·5	4,599	9,750	Slight.
	Nitrapo 201 lb. June	30		32·79	Series ii	14,420	32·49	None	62·00	1·0879	2·23	·109	·051	93·30	4·9	4,148	9,250	Slight.
		60	60	65·58	Mean	14,770	34·07	1·26	62·25	1·0866	2·18	·103	·078	92·34	4·7	4,374	9,500	
Plot II	Nitrapo 201 lb. January	30		32·79	Series i	14,340	31·30	None	60·50	1·0861	2·17	·101	·076	92·34	4·8	3,906	8,476	Slight.
	Nitrapo 201 lb. June	30		32·79	Series ii	14,500	31·32	None	61·50	1·0861	2·14	·063	·147	91·06	2·9	3,973	8,502	Slight.
		60		65·58	Mean	14,420	31·31		61·00	1·0861	2·16	·084	·112	91·70	3·9	3,940	8,489	
Plot III	Control				Series i	12,800	22·78	None	60·00	1·0870	2·18	·063	·127	91·93	2·9	2,817	6,141	Slight.
					Series ii	12,540	25·32	None	62·50	1·0861	2·16	·069	·121	91·91	3·2	3,264	7,050	Slight.
					Mean	12,670	24·05		61·25	1·0866	2·17	·066	·124	91·95	3·1	3,041	6,596	
Plot IV	Nitrate of Soda 193 lb. January	30			Series i	15,540	35·29	None	63·00	1·0897	2·24	·089	·111	91·80	4·0	4,570	10,237	Slight.
	Nitrate of Soda 187 lb. June	30			Series ii	14,680	34·32	None	62·00	1·0861	2·19	·078	·082	93·19	3·6	4,389	9,609	Slight.
		60			Mean	15,110	34·81		62·50	1·0879	2·22	·084	·097	92·50	3·8	4,480	9,923	
Plot V	Nitrate of Soda 193 lb. January	30			Series i	15,060	34·06	None	62·50	1·0879	2·18	·078	·132	91·21	3·6	4,383	9,555	Slight.
	Superphosphates 178 lb. January		60		Series ii	14,360	34·51	None	63·00	1·0835	2·09	·083	·107	91·67	4·0	4,495	9,395	Slight.
	Nitrate of Soda 187 lb. June	30			Mean	14,710	34·29		62·75	1·0857	2·14	·081	·120	91·44	3·3	4,439	9,475	
		60	60															

TABLE X.—NITRAPO AND OTHER MANURIAL EXPERIMENTS CONDUCTED WITH PLANT SUGAR CANES OF Ba 6032 ON WEST CHERRY GROVE, AT BOWMANSTON PLANTATION ON BEHALF OF MR. R. S. CONCLIFFE, B. Sc., OF THE CHILEAN NITRATE COMMITTEE. 1921—1923.

		Nitrogen.	Phosphates.	Potash.		No. of canes per acre.	Canes, tons per acre.	Per cent. by Number of rotten canes.	Per Cent. juice by mill.	Normal Juice. Sp. Gr. 30° C. / 16·6° C.	Normal Juice. lb. per gallon of Saccharose.	Normal Juice. lb. per gallon of Glucose.	Normal Juice. lb. per gallon of Solids not Sugar.	Quotient of purity.	Glucose Ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of Marasmius sacchari, Wakker.
Plot I	Nitrapo 201 lb. January	30		32·79														
	Superphosphates 178 lb. Jany.	...	60		Series i	16,957	36·81	·57	62·75	1·0765	1·90	·096	·094	90·91	5·1	4,807	9,133	Slight.
	Nitrapo 201 lb. June	30		32.79	Series ii	16,619	31·40	2·47	63·00	1·0791	1·96	·069	·131	90·74	3·5	4,107	8,050	Slight.
		60	60	65·58	Mean	16,788	34·11	1·52	62·88	1·0778	1·93	·083	·113	90·83	4·3	4,457	8,592	
Plot II	Nitrapo 201 lb. January	30		32·79	Series i	17,608	34·89	None	65·50	1·0756	1·87	·096	·104	90·34	5·1	4,759	8,899	Slight.
	Nitrapo 201 lb. June	30		32·79	Series ii	13,933	29·50	·87	60·50	1·0773	1·96	·074	·076	92·89	3·8	3,712	7,276	Slight.
		60		65·58	Mean	15,771	32·20	·44	63·00	1·0765	1·92	·085	·090	91·62	4·4	4,236	8,088	
Plot III	Control				Series i	16,449	28·61	3·53	63·50	1·0729	1·79	·104	·106	89·50	5·8	3,794	6,791	Slight.
					Series ii	15,390	27·43	·62	63·00	1·0765	1·90	·083	·107	90·91	4·4	3,596	6,832	Slight.
					Mean	15,920	28·02	2·07	63·25	1·0747	1·85	·094	·107	90·21	5·1	3,695	6,812	
Plot IV	Nitrate of Soda 193 lb. January	30			Series i	17,997	34·31	None	62·50	1·0738	1·82	·104	·096	90·10	5·7	4,474	8,143	Slight.
	Nitrate of Soda 193 lb. June	30			Series ii	17,659	32·13	None	61·00	1·0765	1·88	·093	·117	89·95	4·9	4,078	7,667	Slight.
		60			Mean	17,828	33·22		61·75	1·0752	1·85	·099	·107	90·03	5·3	4,276	7,905	
Plot V	Nitrate of Soda 193 lb. January	30			Series i	16,425	32·59	None	63·00	1·0729	1·76	·114	·126	88·00	6·5	4,287	7,545	Slight.
	Superphosphates 178 lb. Jany.	...	60		Series ii	16,038	33·14	None	62·00	1·0756	1·85	·086	·134	89·37	4·6	4,279	7,916	Slight.
	Nitrate of Soda 193 lb. June	30			Mean	16,232	32·87		62·50	1·0743	1·81	·100	·130	88·69	5·6	4,283	7,731	
		60	60															

TABLE XI. AVERAGE RESULTS OF NITRAPO AND OTHER MANURIAL EXPERIMENTS CONDUCTED WITH PLANT SUGAR-CANES OF BA. 6032 AT BULKELEY AND BOWMANSTON PLANTATIONS ON BEHALF OF MR. R. S. CUNLIFFE, B.Sc., OF THE CHILEAN NITRATE COMMITTEE 1921—1923.

			Nitrogen.	Phosphate.	Potash.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.
										Sp. Gr. $\frac{30^\circ C.}{16{\cdot}6^\circ C.}$	lb. per gallon of			Quotient of purity.	Glucose ratio.		
											Saccharose.	Glucose.	Solids not sugar.				
Plot I	Nitrapo	January	30	...	32·79												
	Superphosphates	,,	...	60	...												
	Nitrapo	June	30	...	32·79												
			60	60	65·58	15,779	34·09	1·39	62·57	1·0822	2·06	·093	·096	91·59	4·5	4,416	9,046
Plot II	Nitrapo	January	30	..	32·79												
	Nitrapo	June	30	...	32·79												
			60	...	65·58	15,096	31·76	·22	62·00	1·0813	2·04	·085	·101	91·66	4·2	4,088	8,289
Plot III	Control		...	...	...	14,295	26·04	1·04	62·25	1·0787	2·01	·080	·116	91·08	4·1	3,368	6,704
Plot IV	Nitrate of Soda	January	30	...	...												
	Nitrate of Soda	June	30	...	...												
			60	...	....	16,469	34·02	...	62·13	1·0816	2·04	·092	·102	91·27	4·6	4,378	8,914
Plot V	Nitrate of Soda	January	30	...	...												
	Superphosphates	,,	...	60	...												
	Nitrate of Soda	June	30	...	...												
			60	60	...	15,471	33·58	...	62·63	1·0800	1·98	·091	·125	90·07	4·7	4,361	8,603

EXPERIMENTS WITH CUTTINGS MADE FROM CANES ATTACKED AND CANES NOT ATTACKED BY THE MOTH BORER.

During the season under review experiments were also carried out at Dodds with cuttings taken from sugar-canes attacked, and sugar-canes not attacked by the moth borer (*Diatraea saccharalis*, Fabr.). The results are given in Table XII.

As will be seen therefrom the plot planted with cuttings made from sugar-canes not attacked by the moth borer gave 788 lb. of saccharose per acre more than the plot planted with cuttings made from sugar-canes attacked by the moth borer.

TABLE XII.

DODDS PLANTATION :—UPPER NIGHTINGALE FIELD, 1921—1923.

PLANT CANES.

Name or No. of cane.		Number of canes per acre.	Weight in tons per acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of Marasmius sacchari, Wakker.
			Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of Saccharose.	Lb. per gallon of Glucose.	Lb. per gallon of Solids not sugar.	Quotient of purity.	Glucose ratio.			
1. Non-borer cuttings of B.H. 10(12)	Series I ...	19,976	28·26	...	...	2·62	59·00	1·0951	2·33	·086	·164	90·31	3·7	3,410	7,945	Slight.
	Series II ...	19,976	24·42	...	...	10·17	60·50	1·0969	2·39	·066	·174	90·87	2·8	3,017	7,210	Slight.
			26·34	...	...	...	...	...	2·36	...	...	90·59	..	...	7,578	...
2. Borer Cuttings of B.H. 10(12)	Series I ...	18,524	25·41	...	...	5·96	61·00	1·0942	2·30	·096	·164	89·84	4·2	3,173	7,298	Slight.
	Series II ...	18,002	21·54	...	...	9·35	60·00	1·0969	2·38	·078	·172	90·49	3·3	2,639	6,281	Slight.
			23·48	...	...	...	...	...	2·34	...	...	90·17	...	...	6,790	...

In last season's report the results were given of the experiments started in 1920-22 for ascertaining whether it was not possible to increase the yield of the sugar-canes per acre by growing them from stools containing on the average the maximum number per stool as compared with stools containing on the average the minimum number per stool. This season an additional experiment was started to ascertain what difference, if any, existed from growing cuttings in the manner usually adopted on sugar estates, that is, taking cuttings from the stools as they come without any regard to selection. The results for the two seasons are given in Table XII As will be seen therefrom, so far on the average for the two years the sugar-canes grown from cuttings taken from the stools, containing the maximum number of sugar-canes, yielded 5·05 tons per acre or 19·27 per cent more than the sugar-canes grown from the stools with the minimum number per stool, and that this year the canes obtained from the cuttings taken from the stools with the maximum number of canes have yielded 5·58 tons per acre or 18·72 per cent more than those grown from the average number per stool.

TABLE XIII.—SHOWING AVERAGE RESULTS BY GROWING SUGAR-CANE CUTTINGS SELECTED FROM LARGE STOOLS AS COMPARED WITH CUTTINGS SELECTED FROM AVERAGE AND SMALL STOOLS FOR SEASONS 1920-22 AND 1921-23.

	Season.	Tons of canes per acre.	Increase in tons per acre over average stools.	Increase in tons per acre over small stools.	Per cent. increase	
					Av. stools.	Small stools.
Canes selected from large stools of B. H. 10 (12). ...	1920—22	27·12	...	...	...	...
Canes selected from large stools of B. H. 10 (12). ...	1921—23	35·39	5·58	...	(*a*) 18·72	...
Mean	... ...	31·26	...	5·05	...	(*b*) 19·27
Canes selected from average stools of B. H. 10 (12). ...	1921—23	29·81	...	...	...	...
Canes selected from small stools of B. H. 10 (12). ...	1920—22	24·19	...	...	...	...
Canes selected from small stools of B. H. 10 (12). ...	1921—23	28·23	...	...	...	...
Mean	...	26·21	...	...	...	...

(*a*) For one year.
(*b*) For two years.

PART III.

EXPERIMENTS WITH SEEDLING AND OTHER CANES AT BARBADOS FOR THE SEASON 1921—1923.

The following is a summary of the principal results obtained in connection with seedling and other varieties of sugar-cane for the season 1921-1923 and contains the more important results that have been obtained during the season. In this branch of the work the object which is steadily kept in view is to obtain such varieties as will be best suited to the soil and climatic conditions existing in the different districts of the island.

To this end, numbers of new canes are raised annually from seed, the number depending in a great measure on the climatic conditions existing during the flowering season of the sugar-cane, and to the fund available for the carrying on of the work. When the weather conditions are favourable large numbers are easily grown; on the other hand when drought prevails at the time the sugar-canes are flowering the seeds are by no means as fertile and, consequently, comparatively few germinate.

Seeds of certain of the sugar-canes which are selected for their yield and, saccharose content, etc. are sown in boxes towards the end of November or in the beginning of December in each year. As soon as the plantlets are sufficiently grown, they are pricked out into pots and when they are about eight or ten inches high they are planted, usually in the month of April, in a field arranged for irrigation, so that they may be grown to maturity by May of the following year. In a year's time those varieties, which from their field characters are considered good enough for reproduction, are cut, weighed, crushed, and the juice analysed. Only the stools from those canes which give a sufficiently high weight and contain fairly rich and pure juice are replanted. The stools of the canes selected are taken up, divided in halves, planted where they can be irrigated and carefully labelled. At the same time a plan of the field is made showing the position of each stool.

During the following December the canes from these stools are made into cuttings and planted. From then onward each variety is annually propagated and multiplied in the usual manner, and grown in competition with the White Transparent, the standard cane, and B.H 10 (12) which has of late years given such excellent results.

If the results of the new canes, when grown under similar conditions to the White Transparent and B.H. 10 (12) justify it, they are cultivated on the various experiment plots in the black and red soils and in the Scotland districts, until either they are ultimately rejected or cuttings are supplied to the planters with the recommendation to try them on a small scale and, if the results justify it, to gradually increase the areas under cultivation.

SEEDLINGS OBTAINED IN 1921 AND 1923.

In 1921, owing to the suitable weather conditions, about 15,000 seedling sugar-canes were grown. Of these 5,193 were potted out and 3,132 of the more vigorous were planted in North Grape Tree field at Summervale in 1922. During the reaping season of 1923, 185 were reaped, the juice was analysed and eighty-three of the best seedlings were retained. As was mentioned in the last report owing to the attacks of the root borer and the brown hardback it was decided to discontinue growing the first year seedling sugar-canes on the land rented from Waterford plantation and to grow them on the land of the Government Industrial School. Unfortunately, owing to the drought the young seedlings were not transplanted in the field until June 9, 1921 with the result that, as they suffered very much in the pots, at reaping time they were stunted and in poor condition.

Owing to the drought which prevailed during the first half of 1922 the sugar-canes grown on the lands of the Government Industrial School were again this year so immature when the usual period for flowering arrived that none of the better varieties produced seed.

It was therefore necessary to obtain seeds from some of the planters who reside in the higher districts of the island, where, owing to a better rainfall, the sugar-canes produced fertile seed. From these, about 10,000 seedlings were grown. Of the seedlings that germinated 4,109 were potted out. Of these 3,118 were planted in the land of the Government Industrial School on June 8th, 1923.

Since 1898 a total of 114,500 sugar-canes have been raised from seed and potted out. Of these 3,132 were under cultivation during the season 1921-1923 and 462 variety, manurial and other plots were reaped and the juice from a number of the sugar-canes analysed.

The selected varieties were cultivated during the season at fourteen estates representative of the localities in which they were situated; nine, being in the black soil districts, four in the red soil and one in the Scotland districts. The canes of the experiment plots on one of the estates in the red soil district were not reaped as the present proprietor does not care for the experiments to be carried out on his estate, and placed so many difficulties in our way that they were abandoned. Of the above, five in the black soil districts and one in the red soil district are used as intermediary stations on which the different varieties are tested before they are finally sent to what are generally known as the Selected Seedling Estates. These latter are the estates on which the standard varieties and the best seedlings are cultivated in duplicate plots.

The increase in value of any variety during the year under review when compared with the White Transparent, the standard cane, has been calculated at the rate of $5.11 per 100 lb. of muscovado sugar, the approximate average price at which this sugar sold from February to June, 1923.

In the tables giving the increase compared with the White Transparent during the past five years, its value has been calculated at $5.84 per 100 lb. the approximate average price at which muscovado sugar sold for the years 1919–1923.

For the season under review, the comparative results of the plant canes in the black soil districts are given in Table XIV, both in pounds of saccharose and pounds of muscovado sugar per acre. In calculating the results as mentioned above, 100 lb. of saccharose is taken as equal to 80 lb. of muscovado sugar with its molasses.

Before considering the comparative results obtained with the different varieties of the sugar-canes cultivated for the season 1921-1923 it may be as well to strongly emphasize the fact here that the results are by no means conclusive, particularly in the black soils, owing, as in the case of manurial experiments, to the attacks of the root borer (*Diaprepes abbreviatus*, Linn) and the brown hardback (*Phytalus smithi*, Arrow.). These pests attack some of the clumps of the sugar-cane in some plots in greater numbers than in others, therefore, the results are anything but comparable.

In spite, however, of the difficulties encountered in carrying out the experiments, considerable monetary gains have been obtained by the sugar growers from the growth and dissemination of the better varieties. To give some idea of what these gains are we may mention that as will be seen from the reports of the Department for the period from 1913-15 to 1920-22 on the average for these eight years the B. H. 10 (12), Ba. 6032 and Ba. 11569 averaged 29·22 tons of canes per acre, while the White Transparent averaged 20·45 tons, an increase of 8·77 tons or 42·9 per cent. in favour of the seedlings.

During those eight years the average price at which dark crystal sugar sold in Barbados was $4.90 per 100 lb. At this price, and at 7 lb. of dark crystal sugar per 100 lb. of sugar-canes, the value of a ton of canes is $7.68, so that the value of 8·77 tons of canes is $69.35 per acre per annum more than the White Transparent.

From this would have to be deducted the extra cost of cutting, loading and carting the better canes, say 72c. per acre, leaving a net gain of $66.63 per acre per annum. It is generally estimated at the present time that about 35,000 acres of canes are reaped annually. Assuming that of this area only 20,000 acres were under the seedling sugar canes mentioned above, although we believe that there were more, the value to the growers would at $66.63 per acre be $1,332,600.00 per annum or for the eight years $10,660,800.00.

That the data given above which is based on the results obtained from a large number of experiment plots dotted over the island is fairly correct, we find from the returns kindly supplied us by a planter who lives in a dry district that for the past two years the White Transparent has given an average of 15·01 tons of canes per acre while the B. H. 10 (12) and Ba. 6032 have given on the average 21·84 tons i.e. 6·83 tons or 45·5 per cent. of sugar-canes per acre per annum, more than the White Transparent. At $7.68 per ton of canes the average value of an acre of the two seedling sugar-canes over the White Transparent is $52.45 per annum. To give some idea of why the yields were lower on this estate than in the case of the plots, it may be mentioned that the rainfall for the two and a half years from December 1, 1920 to May 1923 was only 72·45 inches, or an average of 28·98 inches per annum, while that of the plots, a number of which are situated in the higher districts, was much greater.

As there were on the average 103 acres of the B. H. 10 (12) and the Ba. 6032 reaped for the two years, the gain to the estate on the above basis was $5,402.35 per annum. From this would have to be deducted the extra cost of cutting, loading and carting the canes, say 72 cents per acre, i.e $74.16. The net gain to the estate would therefore be $5,328 per annum or for the two years $10,656.

That the gain from growing the three seedling sugar-canes at present under general cultivation is considerably greater, when the saccharose content is taken into consideration, it may be mentioned that in the case of the plot experiments for the eight years there was obtained from the juice of the White Transparent, on the average 4,898 lb. saccharose per acre, while the average obtained from the juice of the B. H. 10 (12), Ba. 6032 and Ba. 11569 was 7,605 lb. saccharose, that is, the average gain per acre per annum for the eight years was 2,707 lb or 55·3 per cent. more than the White Transparent. We find from the records of two factories for seven years that 91·18 per cent, (in some factories it is as much as 96 per cent.) of 96 per cent. dark crystal sugar was obtained for every 100lb. of saccharose obtained in the juice. At this rate, the average yield of dark crystal sugar per acre per annum for the three seedlings, over the White Transparent, was 2,468 lb. The average price at which dark crystal sugar sold during the eight years was $4.90 per 100 lb., therefore the increased profit per acre per annum from the three seedling canes was $120.93, without taking into consideration the value of the molasses. This is on the average about 51 wine gallons per ton of sugar. The molasses, therefore, from the 2,468 lb. of extra sugar per acre would be 56 gallons, and as the average price at which it sold for the past eight years is somewhere about 4 cents per gallon, the value of the molasses would be $2.24 making a total of $123.17 per acre.

As practically the only extra cost of this sugar is certain factory manufacturing expenses, and the depreciation of certain machinery, say $23.17 for the extra sugar and molasses, etc. obtained per acre, this leaves a net profit of $100.00 per acre per annum. To make clear what I mean, I may say that there would be less expense per ton of sugar to put canes on a carrier which contained 2·13 lb. saccharose per gallon of juice, than canes which contained only 1·96 lb. saccharose per gallon of juice. The vacuum pan would work a shorter time as the juice from the richer seedling would also be purer. The centrifugals, however, would have to work longer. So for 20,000 acres this would be $2,000,000.00 per annum or for the eight years $16,000,000.00. I may further mention that the above increased yield is based on the extraction of the little three-roller mill by which the canes from the experiment plots are crushed, and which on the average extracts about 60 lb. of juice from each 100 lb. of canes and which is about the extraction of the average three roller mill in an ordinary estate factory. Had the extraction been calculated on the basis of a factory crushing 72·13 lb. of juice out of every 100 lb. of canes the profit derived by the sugar industry would have been still more than $16,000,000. 00. We have used these figures "72·13" because we find from "Cane-Sugar and its Manufacture." by H. C. Prinsen Geerligs that the extraction of juice without maceration for a three three-roller mill is given as 72·13 per cent. He also gives the comparative saccharose content of the juice from the different mills. In this case, the extraction of the first mill was 64·50 per cent, the second mill, 5·50 per cent and the third mill 2·13 per cent. The saccharose content of the juice from the respective mills was 12·93 per cent; 11·41 per cent and 11·30 per cent. The ordinary three-roller mill, as stated above, extracts on the average about 60 lb. of juice from every 100 lb. of canes. In calculating the gain from the extra extraction, we have assumed that the remaining 12·13 per cent. was in the same proportion as that given by Geerligs. The 60 lb. of juice would, therefore, contain 7,758 lb. of saccharose; the remaining 4·50 lb. of juice from the first mill at 12·93 per cent would contain ·582 lb. of saccharose; 5·50 lb. of juice from the second mill at 11·41 per cent, ·628 lb. saccharose and 2·13 lb. of juice at 11·30 per cent. ·241 lb. of saccharose. Therefore, 12·13 lb. of juice would contain 1·451 lb. of saccharose. This is a gain of 18·70 per cent. On the above basis, the White Transparent would have yielded 5,814 lb. saccharose, while B. H. 10 (12), Ba. 6032 and the Ba. 11569 would have yielded 9,027 lb. saccharose per acre per annum, that is, the average gain of saccharose per acre per annum for the eight years was 3,213 lb. or 55·3 per cent more than the White Transparent. We find from the records of two factories as stated above 91·18 lb. of 96 per cent of dark crystal sugar is obtained from every 100lb. saccharose contained in the juice. At this rate, the average yield of the three seedling sugar-canes over the White Transparent would be 2,930 lb. dark crystal sugar per acre per annum. As the average price of dark crystal sugar for the eight years was $4.90 per 100 lb. the increased profit per acre per annum from the three seedling sugar-canes was $143.57, without taking into consideration the value of the extra molasses. At 51 wine gallons per ton of sugar the molasses from 2,930 lb. dark crystal sugar would therefore be 66·7 wine gallons, and at four cents per gallon, $2.67, making a total of $146.24 per acre. As stated above, the extra cost of this sugar is certain factory manufacturing expenses and the depreciation of certain of the machinery, say $23.17 per acre, the net profit is therefore

$123.07 per acre per annum, so for 20,000 acres this would be $2,461,400.00 per annum or for the eight years $19,691,200.00. It may, therefore, be said that the sugar industry in Barbados benefited from the planting of the seedling sugar-canes in comparison with the White Transparent, during the last eight years, (if they had been worked up in a three three-roller mill), by at least $19,691,200.00.

We will now turn for a moment to the estate referred to above and see how much more would have been gained had the canes been worked up in a factory belonging to the grower. As we have no data as to the working of the factory at which these canes were manufactured into dark crystal sugar we are calculating the value of the extra gain on the basis of that obtained in a factory with a three three-roller mill as that given in the case of the plots dotted about the island.

The White Transparent at this estate averaged for the two years on the basis of an extraction of 60 per cent 3,971 lb. of saccharose per acre. The B.B. 10 (12) and the Ba. 6032 averaged 6,637 lb., that is, the two seedling sugar-canes yielded 2,666 lb. of saccharose per acre more than the White Transparent. As 91·18 per cent. of the saccharose should, as stated above, be recovered, the 2,666 lb. of saccharose would be equal to 2,431 lb. of 96 per cent. dark crystal sugar.

At $4.90 per 100 lb. the value of 2,431 lb. and 55 wine gallons of molasses at 4c. per gallon would be $121.33 per acre. Deducting, as in the case of the results obtained with the experiments with the small plot, the cost of manufacturing the extra sugar and the depreciation, say $23.17, the net return from the seedling sugar-canes in excess of the White Transparent would be $98.16 per acre. As on the average there were 103 acres of the seedling sugar-canes and 5·25 acres of the White Transparent grown per annum, the gain would have been, if the 108·25 acres had been planted with seedling sugar-canes instead of the White Transparent, $10,626 per annum or for the two years $21,252.

The average results of the better varieties of the seedling sugar-canes on the black and red soils for the season 1921-1923 are given in Table XIV to XVI. In Tables XVII and XVIII the results on the black soils for the five seasons 1917-19, 1918-20, 1919-21, 1920-22, 1921-23 and on the red soils for the five seasons 1916-18, 1917-19, 1919-21, 1920-22, and 1921-23 are given, where the yield and increases in value over the White Transparent may be seen.

Owing to the engine of the experiment mill being broken in 1920 it was impossible to crush all the canes that year and so the results from the red soils for the season 1918-20 are omitted.

TABLE XIV.—RESULTS OF SEEDLINGS AND OTHER VARIETIES OF THE SUGAR-CANE THAT HAVE BEEN UNDER CULTIVATION FOR SOME YEARS FOR THE SEASON 1921—1923.

Black Soils—Plant Canes.

Name or No. of cane.	Number of experiments.	Saccharose, lb. per acre.	Muscovado sugar, lb. per acre.	Increase in value per acre compared with White Transparent.
				$ c.
B. 268	3	9,005	7,204	151.36
B. 89	3	7,742	6,194	99.75
B. S. F. 13 (14)	2	7,661	6,129	96.43
B. S. F. 12 (48)	1	7,604	6,083	94.08
B. 391	1	7,500	6,000	89.83
Ba. 11569	13	7,381	5,905	84.98
B. 417	2	7,359	5,887	84.06
B. 368	1	7,334	5,867	83.04
B. H. 10 (12)	17	7,225	5,780	78.59
Ba. 8069	9	7,221	5,777	78.44
B. 381	1	7,154	5,723	75.68
B. 263	1	7,143	5,714	75.22
B. 397	1	7,135	5,708	74.91
Ba. 6032	13	7,047	5,638	71.34
B. 117	1	7,036	5,629	70.88
B. 169	1	6,939	5,551	66.89
Ba. 7924	7	6,920	5,536	66.12
B. 119	1	6,824	5,459	62.19
B. 154	1	6,765	5,412	59.79
B. 67	10	6,651	5,321	55.14
B. 2001	6	6,627	5,302	54.17
B. 396	1	6,314	5,051	41.34
B. 6450	12	6,304	5,043	40.93
B. 284	1	6,272	5,018	39.65
B. 335	1	6,191	4,953	36.33
B. 163	1	6,165	4,932	35.26
B. 369	1	6,119	4,895	33.37
B. 425	2	5,796	4,637	20.18
Ba. 8409	5	5,739	4,591	17.83
B. 204	1	5,515	4,412	8.68
Ba. 11403	4	5,451	4,361	6.08
B. 199	1	5,428	4,342	5.11
B. N. H. $\frac{11\ (6)}{15\ (2)}$	1	5,422	4,338	4·90
B. 85	3	5,376	4,301	3.01
B. N. H. 16 (13)	1	5,354	4,283	2.0J
W. Transparent	17	5,303	4,242	...

TABLE XV.—RESULTS OF SELECTED VARIETIES FOR THE SEASON 1921-1923

Red Soils—Plant Canes.

Name or No. of cane.	Number of experiments.	Saccharose, lb. per acre.	Muscovado sugar, lb. per acre.	Increase in value per acre compared with White Transparent.
				$ c.
B. H. 10 (12)	7	10,792	8,634	250.24
Ba. 12079	3	10,013	8,010	218.35
Ba. 6032	7	9,213	7,370	185.65
B.S F. 12 (24)	1	9,163	7,330	183.60
B. 6450	7	9,025	7,220	177.98
B. 67	6	8,228	6,582	145.38
Ba. 7924	5	8,203	6,562	144.36
Ba. 11569 (a)	7	7,820	6,256	128.72
Ba. 11224	1	7,195	5,756	103.17
Ba. 2471	4	6,061	4,849	56.82
W. Transparent	7	4,671	3,737	...

(a) In the Red Soil district the Ba. 11569 is usually badly eaten by rats and the yield of the plots considerably reduced.

TABLE XVI.—RESULTS OF SELECTED VARIETIES OF PLANT CANES, 1ST RATOONS AND 2ND RATOONS REAPED DURING THE SEASON 1923.

Red Soils.

Name or No. of cane.	Number of experiments.	Saccharose, lb. per acre.				Muscovado sugar, lb. per acre.	Increase in value per acre compared with White Transparent.
		Plants.	First Ratoons.	Second Ratoons.	Total for three crops.		
							$ c.
B. H. 10 (12)	15	10,792	9,544	9,125	29,461	23,569	504.92
Ba. 12079	7	10,013	10,075	8,122	28,210	22,568	453.77
Ba. 7924	13	8,203	8,290	8,895	25,388	20,310	338.38
Ba. 6032	15	9,213	8,688	7,129	25,030	20,024	323.77
B. 6450	15	9,025	8,467	8,229	23,721	18,977	270.27
White Transparent	15	4,671	5,032	7,407	17,110	13,688	...

TABLE XVII.—RESULTS OF THE SELECTED VARIETIES FOR THE FIVE SEASONS 1917—19 TO 1921—1923.

Black Soils.—Plant Canes.

Name or No. of cane.	No. of years.	No. of experiments.	Saccharose, lb. per acre.	Muscovado sugar, lb. per acre.	Increase or decrease in value per acre compared with White Transparent.
					$ c.
B.S.F. 12 (48)	5	5	6,937	5,550	104.04
B. 39	5	7	6,920	5,536	103.32
Ba. 8409	5	13	6,863	5,490	100.97
B.H. 10 (12)	5	75	6,723	5,378	95.25
B. 117	5	5	6,543	5,234	87.89
Ba. 11569	5	49	6,505	5,204	86.36
B. S. F. 12 (50)	5	11	6,392	5,114	81.76
Ba. 11403	5	18	6,389	5,111	81.61
B. 119	5	5	6,263	5,010	76.45
B. 14761	5	5	6,216	4,973	74.55
Ba. 6032	5	62	6,123	4,898	70.72
Ba. 8069	5	19	6,117	4,894	70.52
Ba. 12079	5	10	5,938	4,750	63.16
B. 169	5	5	5,841	4,673	59.22
Ba. 8846	5	5	5,820	4,656	58.36
B. 18	5	5	5,773	4,618	56.41
B. 163	5	5	5,771	4,617	56.36
B. 204	5	5	5,638	4,510	50.90
Ba. 7924	5	45	5,637	4,510	50.90
B. 199	5	5	5,601	4,481	49.41
B. 164	5	5	5,587	4,470	48.85
B. S. F. 13 (14)	5	9	5,562	4,450	47.83
B. N. H. $\frac{11\ (6)}{15\ (4)}$	5	5	5,521	4,417	46.12
B. 177	5	5	5,418	4,334	41.90
B. 6450	5	72	5,394	4,315	40.83
B. 85	5	9	5,294	4,235	36.84
B. S. F. 12 (53)	5	15	5,276	4,221	36.13
B. N. H. $\frac{11\ (6)}{15\ (2)}$	5	5	5,249	4,199	35.00
Uba	5	5	5,247	4,198	34.95
Ba. 2471	5	25	5,235	4,188	34.44
B. S. F. 12 (34)	5	13	5,122	4,098	28.84
B. S. F. 12 (27)	5	28	5,059	4,047	27.24
Ba. 11224	5	5	4,906	3,925	21.00
B. 376	5	5	4,873	3,898	19.62
B. S. F. 12 (45)	5	5	4,718	3,774	13.29
B. S. F. 13 (8)	5	8	4,699	3,759	12.52
W. Transparent	5	86	4,393	3,514	...
B. 7169	5	6	4,379	3,503	- .56
Bourbon	5	5	3,104	2,483	- 52.68

TABLE XVIII.—SELECTED VARIETIES FOR THE FIVE SEASONS—1916-1918, 1917-1919, 1919-1921, 1920-1922, and 1921-1923.

Red Soils.—Plant Canes.

Name or No. of cane.	No. of years.	No. of experiments.	Saccharose, lb. per acre.	Muscovado sugar, lb. per acre	Increase in value per acre compared with White Transparent.
					$ c
B. H. 10 (12)	5	42	9,416	7,533	182.84
Ba. 11569	5	28	8,012	6,410	125.45
Ba. 6032... ...	5	42	7,914	6,331	121.41
Ba. 12079 ...	5	14	7,900	6,320	120.85
Ba. 7924...	5	40	7,474	5,979	103.43
B. 6450	5	42	7,133	5,706	89.48
Ba. 2471...	5	16	5,823	4,658	35.92
B. 3922	5	18	5,174	4,139	9.40
W. Transparent	5	41	4,944	3,955	...

As a considerable number of the planters are now growing several of the newer seedling sugar-canes such as B.H. 10 (12), Ba. 6032, Ba. 7924, Ba. 11569, Ba. 12079, etc., it may not be without interest if the results obtained from some of these sugar-canes over a number of years are compared with the White Transparent and B. 6450, the two canes used at the present time as standards. Each of these new varieties was grown on the same estate, in the same field and under the same conditions as the White Transparent and B. 6450. The results are given in Table XIX. As will be seen therefrom, under the conditions mentioned above, B.H. 10 (12) gave an increased yield in saccharose over the White Transparent of 56·7 per cent. and over the B. 6450 of 27·7 per cent. Ba. 6032 gave an increased yield of 47·4 per cent over the White Transparent and 13·1 per cent. over the B. 6450; Ba. 7924, 34·8 per cent over the White Transparent and 6·6 per cent. over the B. 6450; Ba. 11569, an increase of 53·7 per cent over the White Transparent and 20·0 per cent. over the B. 6450; Ba. 12079, an increase of 35·1 per cent. over the White Transparent and 9·7 per cent over the B. 6450. The other varieties, as will be seen from the table, although they gave considerable yields in saccharose over the White Transparent and B. 6450 have not come up to the yields of B.H. 10 (12), Ba. 6032 or Ba. 11569.

As it has been stated that Ba. 6032 and Ba. 11569 have, owing to the drought, during the past two years given better results than the B.H. 10 (12) we give in Table XX, the results obtained with these three seedling canes and two other varieties, viz., Ba. 8069, and Ba. 12079 over a number of years in the black soils. As will be seen therefrom, the B.H. 10 (12) has in every instance given higher yields of saccharose per acre than any of the other varieties, owing to the richer saccharose content of the juice. On the other hand, as will also be seen from Table XX, Ba. 6032, Ba. 11569, Ba. 8069 and Ba. 12079 have given slightly better yields of sugar-canes per acre.

TABLE XIX.—WHITE TRANSPARENT AND B. 6450 COMPARED WITH SOME OF THE BETTER SEEDLING SUGAR-CANES GROWN IN THE SAME FIELDS DURING THE SEASONS 1913-15 TO 1921-23.

Name or No. of cane.	No. of years.	No. of experiments.	Canes, tons per acre.	Normal Juice. lb. per gallon of Saccharose.	Normal Juice. lb. per gallon of Glucose.	Quotient of purity.	Glucose ratio.	Saccharose, lb. per acre.	Increase in Saccharose lb. per acre over W. Transparent.	Increase in Saccharose lb. per acre over B. 6450.	Per cent. of increase over White Transparent.	Per cent. of increase over B.6450.
White Transparent and B. 6450 compared with Ba. 6032 grown in the same field during the seasons 1913-1915 to 1921-1923.												
White Transparent	9	121	21·48	1·97	·066	88·14	3·48	5,202	...	...	...	...
B. 6450	9	121	26·92	1·97	·066	88·24	3·40	6,780	1,578	...	30·3	...
Ba. 6032	9	121	31·40	1·95	·067	88·65	3·50	7,667	2,465	887	47·4	13·1
White Transparent and B. 6450 compared with B. H. 10 (12) grown in the same field during the seasons 1913-1915 to 1921-1923												
White Transparent	9	94	21·40	2·00	·069	80·41	3·49	5,320	...	...	...	...
B. 6450	9	94	26·08	1·99	·068	88·31	3·43	6,532	1,212	...	22·8	...
B. H. 10 (12)	9	94	28·84	2·31	·063	90·62	2·72	8,339	3,019	1,807	56·7	27·7
White Transparent and B. 6450 compared with Ba. 7924 grown in the same field during the seasons 1913-1915 to 1921-1923.												
White Transparent	9	71	22·45	1·98	·077	93·20	3·96	5,484	...	...	...	...
B. 6450	9	71	27·45	1·96	·076	87·85	3·82	6,934	1,450	...	26·4	...
Ba. 7924	9	71	28·71	1·97	·047	89·55	2·38	7,393	1,909	459	34·8	6·6
White Transparent and B. 6450 compared with Ba. 11569 grown in the same field during the seasons 1913-1915 to 1921-1923.												
White Transparent	9	59	19·08	1·99	066	88 93	3·40	4,484	...	...	..	...
B. 6450	9	59	23·57	1·95	·071	87·70	3·61	5,745	1,261	...	28·1	...
Ba. 11569	9	59	27·09	2·17	·066	90·35	3·07	6,894	2,410	1,149	53·7	20·0
White Transparent and B. 6450 compared with Ba. 8069 grown in the same field during the seasons 1913-1915 to 1921-1923												
White Transparent	9	22	20·19	1·97	·077	84 80	3·86	4,891	...	...	...	...
B. 6450	9	22	25·35	1·93	·072	83·37	3·73	6,320	1,429	..	29·2	...
Ba. 8069	9	22	26·12	1·91	·073	88·42	3·92	6,488	1,597	168	32·7	2·7
White Transparent and B. 6450 compared with Ba. 11403 grown in the same field during the seasons 1913-1915 to 1921-1923												
White Transparent	9	22	19·42	1·87	·071	87·56	3·95	4,462	...	...	...	...
B. 6450	9	22	23·34	1·82	·081	86·23	4·22	5,418	956	...	21·4	...
Ba. 11403	9	22	22·02	2·15	·060	90·18	2·84	5,651	1,189	233	26·6	4.3

TABLE XIX.—(*Concluded*). WHITE TRANSPARENT AND B. 6450 COMPARED WITH SOME OF THE BETTER SEEDLING SUGAR-CANES GROWN IN THE SAME FIELDS DURING THE SEASONS 1913-15 TO 1921-23.

Name or No. of cane.	No of years.	No. of experiments.	Canes, tons per acre.	Normal Juice: Lb. per gallon of Saccharose.	Normal Juice: Lb. per gallon of Glucose.	Normal Juice: Quotient of purity.	Normal Juice: Glucose ratio.	Saccharose, lb. per acre.	Increase in saccharose lb. per acre over W. Transparent.	Increase in saccharose lb. per acre over B. 6450.	Per cent. of increase over: White Transparent.	Per cent. of increase over: B. 6450.
White Transparent and B. 6450 compared with Ba. 8409 grown in the same field during the seasons 1913-1915 to 1921-23												
White Transparent	9	17	20·75	1·94	·079	89·77	4·04	4,981	...	...	...	...
B. 6450	9	17	25·66	1·90	·075	88·31	3·93	6,212	1,231	...	24·7	...
Ba. 8409	9	17	27·25	2·00	·073	90·65	3·66	6,609	1,623	397	32·7	6·4
White Transparent and B. 6450 compared with Ba. 12079 grown in the same field during the seasons 1913-1915 to 1921-23												
White Transparent	9	15	20·76	1·98	·067	88·67	3·38	5,035	...	...	...	...
B. 6450	9	15	24·81	1·97	·070	87·71	3·59	6,197	1,162	...	23.0	...
B. 12079	9	15	29·41	1·90	·098	85·86	5·15	6,800	1,765	603	35·1	9·7
White Transparent and B. 6450 compared with B.S.F. 12(48) grown in the same field during the seasons 1914-16 to 1921-23.												
White Transparent	8	8	23·05	1·94	·065	88·92	3·37	5,583	...	...	...	...
B. 6450	8	8	26·63	1·90	·076	86·95	4·00	6,476	893	...	16·0	...
B. S. F. 12 (48)	8	8	29·62	2·09	·106	87·39	5·25	7,400	1,817	924	32·6	14·3
White Transparent and B. 6450 compared with B. 117 and B. 119 grown in the same field during the seasons 1917-19 to 1921-23												
White Transparent	5	5	22·24	1·83	·079	87·19	4·31	4,947	...	...	...	...
B. 6450	5	5	26·64	1·80	·086	85·18	4·77	6,242	1,295	...	26·2	...
B. 117	5	5	24·52	2·27	·054	91·04	2·82	6,545	1,598	303	32·3	4·9
B. 119	5	5	24·93	1·99	·055	89·62	2·79	6,263	1,316	21	26·6	·3

TABLE XX.—THE B.H. 10(12) COMPARED WITH CERTAIN OTHER OF THE BETTER SEEDLING SUGAR-CANES IN THE BLACK SOILS FOR THE SEASONS 1916-18 to 1921-23.

Name or No. of cane.	No. of years.	No. of experiments.	Canes, tons per acre.	Normal Juice. lb. per gallon of Saccharose.	Normal Juice. lb. per gallon of Glucose.	Normal Juice. Quotient of purity.	Normal Juice. Glucose ratio.	Saccharose, lb. per acre.	Increase of Saccharose lb. per acre.	Per cent. of Increase.
B.H. 10(12) compared with Ba. 6032 grown in the same field during the seasons 1916-18 to 1921-23										
B.H. 10(12)	8	94	28·85	2·31	·055	90·83	2·45	7,881	579	...
Ba. 6032	8	94	30·07	1·95	·066	88·64	3·48	7,302	...	...
B.H. 10(12) compared with Ba. 7924 grown in the same field during the seasons 1917-19 to 1921-23										
B.H. 10(12)	7	71	28·26	2·29	·056	91·00	2·43	7,991	1,609	25·2
Ba. 7924	7	71	26·42	1·97	·050	89·33	2·56	6,382	...	...
B.H. 10(12) compared with Ba. 11569 grown in the same field during the seasons 1917-19 to 1921-23										
B.H. 10(12)	7	58	24·60	2·34	·060	92·30	2·62	6,796	114	1·7
Ba. 11569	7	58	26·51	2·16	·067	90·29	3·14	6,682	...	...
B.H. 10(12) compared with Ba. 8069 grown in the same field during the seasons 1917-19 to 1921-23										
B.H. 10(12)	7	21	24·71	2·26	·073	90·67	3·24	6,771	509	8·1
Ba. 8069	7	21	25·45	2·01	·077	88·67	3·86	6,262	...	...
B.H. 10(12) compared with Ba. 12079 grown in the same field during the seasons 1917-19 to 1921-23										
B.H. 10(12)	7	13	25·22	2·27	·053	90·74	2·31	6,902	641	10·2
Ba. 12079	7	13	27·21	1·92	·094	86·51	4·89	6,261	...	...

TABLE XXI.—DODDS PLANTATION—LOWER PADMORE FIELD—PLANT CANES. 1ST YEAR SEEDLINGS.—1923.

Name or No. of cane.	No. of experiments.	No. of years.	Canes, tons per acre.	Saccharose, lb. per gallon.	Glucose, lb. per gallon.	Quotient of purity	Glucose ratio.	Saccharose, lb. per acre.
B. H. 10 (12) ...	1	1	31·52	2·25	·100	92·21	4·4	8,820
B. 505	1	1	31·50	2·28	·063	96·20	2·8	8,805
B. 506	1	1	31·39	2·33	·069	94·33	3·0	8,339
B. 549	1	1	27·83	2·12	·057	92·17	2·7	7,009
B. 525	1	1	28·20	2·20	·057	96·49	2·6	6,332
B. 512	1	1	24.76	2·16	·069	96·86	3·2	6,312
B. 526	1	1	24·37	2·27	·081	93·03	3·6	5,857
B. 537	1	1	24·06	1·98	·104	92·53	5·3	5,691
B. 540	1	1	22·03	2·31	·083	93·52	3·6	5,593
B. 521	1	1	21·31	2·10	·076	94·17	3·6	5,374
B. 538	1	1	23·57	1·73	·104	91·05	6·0	5,339
B. 518	1	1	21·11	1·93	·089	90·19	4·6	5,205
B. 541	1	1	22·13	1·96	·104	90·74	5·3	4,998
B. 565	1	1	22·55	2·01	·066	93·06	3·3	4,941
W. Transparent ...	1	1	19·63	2·04	·071	94·45	3·5	4,861
B. 546	1	1	17·50	2·24	·069	92·56	3·1	4,355
B. 547	1	1	18·50	1·89	·104	87·50	5·5	3,774
B. 568	1	1	14·24	1·81	·089	93·78	4·8	3,372
B. 560	1	1	13·42	1·85	·096	93·91	5·2	3,034

TABLE XXII.—RESULTS OF SOME OF THE SEEDLING CANES UNDER EXPERIMENT FOR THE SEASON 1921—1923.

Second Year Seedlings.

Name or No. of cane.	No. of experiments.	No. of years.	Canes, tons per acre.	Saccharose, lb. per gallon	Glucose, lb. per gallon.	Quotient of purity.	Glucose ratio.	Saccharose, lb. per acre.
DODDS PLANTATION LOWER PADMORE FIELD.								
B.H. 10 (12) ..	1	1	31·52	2·25	·100	92·21	4·4	8,820
B. 454 ..	1	1	25·98	2·01	·083	89·34	4·1	6,537
B. 445	1	1	29·63	1·75	·069	82·94	3·9	6,361
B. 439 ..	1	1	22·94	2·14	·083	92·24	3·9	6,182
B. 442	1	1	22·94	2·10	·100	91·30	4·8	5,773
B. 432 ..	1	1	22·37	2·03	·081	90·22	4·0	5,451
B. 458 ...	1	1	23·50	1·78	·083	88·12	4·7	4,931
W. Transparent .	1	1	19·63	2·04	·071	94·45	3·5	4,861
B. 441	1	1	22·68	1·71	·089	83·82	5·2	4,603
SUMMERVALE PLANTATION. SOUTH STABLE FIELD.								
B.H 10(12) ...	1	1	31·63	2·25	·083	94·14	3·7	8,573
B. 472	1	1	31·02	1·97	·066	95·17	3·4	7,701
W. Transparent ..		1	29·29	1·93	·074	91·67	3·7	7,405
B. 465	1	1	33·57	1·83	·100	92·89	5·5	7,316
B. 491	1	1	30·88	1·79	·139	84·83	7·8	6,492
B. 468	1	1	26·86	1·96	·063	89·91	3·2	6,388
B. 490	1	1	23·04	1·81	·104	90·50	5·7	6,254
B. 494	1	1	25·20	2·07	·125	93·67	6·0	6,160
B. 470	1	1	28·26	1·65	·137	84·62	10·1	5,849
B. 499	1	1	27·22	1·73	·179	84·81	10·3	5,790
B. 486	1	1	26·31	1·69	·066	90·86	3·9	5,738
B. 469 ..	1	1	24·76	1·88	·083	92·16	4·4	5,335
B. 484	1	1	21·98	1·81	·066	92·82	3·6	5,075
B. 467	1	1	22·55	1·82	·125	89·22	6·9	4,878
B. 488	1	1	20·80	2·04	·054	93·58	2·6	4,708
B. 466	1	1	18·07	1·90	·114	95·00	6·0	3,998
B. 487	1	1	16·23	1·87	·096	92·57	5·1	3,925
B. 502	1	1	22·74	1·58	·192	79·00	12·2	3,809
B. 476	1	1	18·54	1·65	·179	83·76	10·8	3,502
B. 501	1	1	18·10	1·50	·208	77·72	13·9	3,351

TABLE XXIII. *Red Soils.*

VARIETIES ARRANGED ACCORDING TO YIELD OF SACCHAROSE PER ACRE FOR THE SEASON 1921-1923.

Name or No. of cane.	No. of estates.	No. of plots reaped.	Canes, tons per acre.	Saccharose, lb. per gallon.	Glucose, lb. per gallon.	Quotient of purity.	Glucose ratio.	Saccharose, lb. per acre.
			Plant Canes.					
B.H. 10(12)... ...	4	7	39·39	2·10	·083	92·67	3·99	10,792
Ba. 12079 ...	2	3	41·91	1·81	·108	90·41	5·93	10,013
Ba. 6032	4	7	36·37	1·92	·084	92·30	4·39	9,213
B.S.F. 12 (24) ...	1	1	39·92	1·68	·074	92·82	4·40	9,163
B. 6450	4	7	33·16	2·00	·075	91·86	3·71	9,025
B. 67	4	6	30·75	2·00	·106	91·25	5·33	8,228
Ba. 7924	3	5	32·34	1·97	·071	94·10	3·60	8,203
Ba. 11569 (a) ...	4	7	33·16	2·14	·080	93·66	3·76	7,820
Ba. 11224	1	1	29·24	2·08	·066	96·30	3·20	7,195
Ba. 2471	2	4	26·47	1·94	·110	88·19	5·75	6,061
W. Transparent ...	4	7	19·13	1·94	·083	92·66	4·23	4,671
B. 3922	1	2	17·73	1·97	·126	90·67	6·40	4,449
			First Ratoons.					
Ba. 12079	1	2	38·76	2·02	·125	88·98	6·20	10,075
B.H. 10 (12) ...	3	6	32·92	2·23	·074	92·38	3·35	9,544
Ba. 6032	3	6	33·69	1·95	·095	90·75	4·88	8,688
Ba. 7924	3	6	30·56	2·09	·073	93·15	3·48	8,290
B. 67	3	6	25·22	2·04	·114	90·79	5·65	6,982
B 6450	3	6	24·59	1·99	·083	91·52	4·22	6,467
Ba. 2471	1	2	22·81	1·99	·153	87·71	7·70	5,591
W. Transparent ...	3	6	19·84	2·02	·079	93·68	3·97	5,032
B. 3922	1	2	19·18	2·06	·071	95·38	3·45	4,950
Ba. 11569 (a) ...	2	4	15·95	2·15	·079	93·99	3·73	4,185
			Second Ratoons.					
B.H. 10 (12) ...	1	2	32·50	2·17	·088	92·71	4·05	9,125
Ba. 7924	1	2	32·07	2·09	·079	93·50	3·75	8,895
B.S.F. 12 (27) ...	1	2	32·75	1·96	·088	89·91	4·50	8,356
B. 6450	1	2	30·07	2·06	·082	91·34	4·00	8,229
Ba. 12079	1	2	34·08	1·90	·152	87·84	7·80	8,122
W. Transparent ...	1	2	18·04	2·01	·118	91·25	5·95	7,407
Ba. 6032	1	2	27·18	1·99	·073	91·08	3·65	7,129
B. 3922	1	2	22·39	2·04	·085	90·67	4·20	5,923

(a) In the red soil district the Ba. 11569 is usually badly eaten by rats and the yield of the plots considerably reduced.

TABLE XXIV. *Black Soils. Plant Canes.*

RESULTS OF SOME OF THE BETTER SEEDLING AND OTHER SUGAR CANES UNDER EXPERIMENT FOR THE FIVE SEASONS ENDING 1923.

Name or No. of cane.	No. of experiments.	No. of years.	Canes, tons per acre.	Saccharose, lb. per gallon.	Glucose, lb. per gallon.	Quotient of purity.	Glucose r tio.	Saccharose, lb. per acre.
B.S F. 12 (48)	5	5	26·44	2·09	·099	76·90	4·63	6,937
B. 39	7	5	28·71	1·94	·078	87·75	4·08	6,920
Ba. 8409	13	5	28·29	2·00	·071	89·98	3·58	6,863
B. H. 10 (12)	75	5	24·53	2·28	·068	90·09	3·02	6,723
B. 117	5	5	24·52	2·27	·064	91·04	2·82	6,543
Ba. 11569	49	5	25·78	2·17	·068	89·89	3·14	6,505
B.S.F. 12 (50)	11	5	28·30	1·73	·151	80·71	6·32	6,392
Ba. 11403	18	5	23·81	2·22	·063	89·93	2·84	6,389
B. 119	5	5	24·93	1·99	·055	89·62	2·79	6,263
B. 14761	5	5	24·86	2·13	·057	89·75	2·72	6,216
Ba. 6032	62	5	26·04	1·93	·071	88·02	3·81	6,123
Ba. 8069	19	5	24·44	2·03	·081	87·97	4·01	6,117
Ba. 12079	10	5	26·11	1·92	·097	85·58	5·06	5,938
B. 169	5	5	25·40	1·92	·093	87·94	5·13	5,841
B. 8846	5	5	22·88	2·10	·058	91·95	2·81	5,820
B. 18	5	5	27·11	1·74	·108	85·71	6·31	5,773
B. 163	5	5	26·63	1·86	·090	88·16	4·90	5,771
B. 204	5	5	25·88	1·76	·143	82·86	8·92	5,638
Ba. 7924	45	5	24·09	1·94	·059	88·89	3·05	5,637
B. 199	5	5	23·80	1·88	·079	87·18	4·17	5,601
B. 164	5	5	23·38	2·06	·060	91·81	2·89	5,587
B.S.F. 13 (14)	9	5	30·45	1·64	·123	77·42	7·78	5,562
B.N.H. $\frac{11\ (6)}{15\ (4)}$	5	5	22·59	2·03	·099	85·99	5·03	5,521
B. 177	5	5	24·67	1·90	·096	86·98	5·24	5,418
B. 6450	72	5	22·54	1·92	·075	87·23	3·86	5,394
B. 85	9	5	23·59	1·99	·105	86·15	5·31	5,294
B.S.F. 12 (53)	15	5	23·52	1·84	·091	87·05	5·48	5,276
B.N.H. $\frac{11\ (6)}{15\ (2)}$	5	5	22·94	1·92	·094	88·27	5·08	5,249
Uba	5	5	28·49	1·65	·163	76·46	10·24	5,247
Ba. 2471	25	5	22·91	1·99	·074	87·28	3·86	5,235
B.S.F. 12 (34)	13	5	21·99	1·88	·095	84·72	5·06	5,122
B.S.F. 12 (27)	28	5	22·36	1·88	·083	84·94	4·07	5,059
Ba. 11224	5	5	19·27	2·22	·052	91·62	2·32	4,906
B. 376	5	5	21·85	1·86	·085	88·46	4·52	4,873
B.S.F. 12 (45)	5	5	21·79	1·86	·092	87·64	4·96	4,718
B.S.F. 13 (8)	8	5	23·05	1·69	·113	80·29	4·69	4,699
W. Transparent ...	86	5	19·85	1·95	·075	88·38	3·96	4,393
B. 7169	6	5	21·85	1·95	·079	88·70	4·05	4,379
Bourbon	5	5	14·50	1·67	·105	83·79	4·90	3,104

TABLE XXV.

Scotland District.

MEAN RESULTS OF PLANT CANES UNDER EXPERIMENT FOR THE SEASON 1921-23.

	Name or No. of cane.	No. of experiments.	Canes, tons per acre.	Saccharose, lb. per gallon.	Glucose, lb. per gallon.	Quotient of purity.	Glucose ratio.	Saccharose, lb. per acre.
1	Ba. 11569	2	48·73	2·27	·081	90·94	5·7	13,615
2	B.H. 10 (12)	2	49·03	2·19	·064	90·14	2·9	10,945
3	Ba. 6032	2	43·71	1·88	·076	87·03	4·1	10,711
4	B. 6450	2	33·91	2·01	·060	87·58	3·0	8,763
5	Ba. 7924	2	33·20	1·93	·077	87·28	4·0	8,062
6	Haw. 146	2	33·47	1·93	071	87·69	3·2	7,947
7	W. Transparent	2	27·43	2·02	·053	89·36	2·7	6,582

EXPERIMENTS CARRIED OUT ON DIFFERENT ESTATES WITH A NUMBER OF THE BETTER VARIETIES OF THE SEEDLING SUGAR CANES.

With the object of ascertaining the suitability of the best of the various seedling sugar canes grown, a number of experiments are carried out with the help of certain planters in the different districts of the island. As the results obtained are of special value to the sugar cane growers of the districts in which these seedlings are grown the data is given in Tables XXVI to XLVII.

TABLE XXVI.—DODDS PLANTATION :- LEMON TREE FIELD. 1921–1923.

Plant Canes.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30°C./16·6°C.	lb. per gallon of Saccharose.	lb. per gallon of Glucose.	lb. per gallon of Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Maravamius saccharl*, Wakker.	Insect pests per acre. *Dupreppes abbreviatus*, Linn.	Insect pests per acre. *Phytalus smithi*, Arrow.	Insect pests per acre. Total.
W. Transparent	16,318	18·69	10·68	57·00	1·0800	2·01	·057	·083	93·58	2·8	2,211	4,510	Bad.	1,567	638	2,205
Bourbon	18,626	18·66	19·42	58·50	1·0765	1·90	·083	·107	90·91	4·4	2,272	4,317	Bad.	134	26	160
B. 18	20,614	21·82	21·60	57·50	1·0729	1·76	·119	·121	88·00	6·8	2,168	4,608	Moderate.	1,441	864	2,305
B. 59	31,239	24·11	4·46	57·50	1·0782	1·94	·074	·1·6	90·66	3·8	2,880	5,587	Moderate.	,277	348	1,625
B. 67	18,989	25·28	5·81	61·50	1·0826	2·12	·089	·041	94·22	4·2	3,216	6,818	Moderate	1,161	290	1,451
B. 85	26,152	22·01	4·44	55·50	1·0861	2·18	·053	·117	92·77	2·4	2,518	5,489	Moderate.	406	...	406
B. 117	27,873	25·64	5·09	56·00	1·0924	2·39	·068	·052	95·22	2·8	2,914	7,036	Slight.	1,225	3·2	1,547
B. 119	22,938	26·86	6·84	60·00	1·0791	2·04	·037	·0·3	94·45	1·8	3,345	6,824	Slight.	929	580	1,509
B. 147	17,328	22·51	0·53	58·00	1·0773	1·93	·057	·123	91·47	3·0	2,715	5,240	Moderate.	1,166	1,099	2,565
B. 154	18,582	28·26	5·94	59·00	1·0765	1·95	·057	·083	93·30	2·9	3,469	6,765	Slight.	987	406	1,393
B. 163	22,880	26·62	1·02	55·00	1·0800	2·03	·063	·087	93·12	3·1	3,087	6,165	Slight.	1,045	929	1,974
B. 164	20,383	18·15	5·98	55·50	1·0817	2·11	·063	·057	94·62	3·0	2,086	4,401	Slight.	1,684	1,103	2,787
B. 312	21,892	18·85	2·12	50·50	1·0826	2·09	·057	·103	92·89	2·7	1,969	4,115	Slight.	812	754	1,566
B. 376	18,815	19·70	14·20	58·25	1·0765	1·90	·104	·086	90·91	5·5	2,388	4,537	Bad.	1,393	929	2,322
B. 6450	19,907	28·05	2·19	62·50	1·0800	2·00	·057	·123	91·74	2·9	3,635	7,270	Slight.	840	1,081	1,921
B. 7169	21,021	23·98	4·42	56·00	1·0817	2·05	·074	·096	92·38	3·6	2,781	5,729	Moderate.	2,497	1,625	4,122
Ba. 2471	20,266	16·07	7·16	54·50	1·0817	1·98	·125	·125	88·79	6·3	1,811	3,592	Moderate.	605	681	1,286
Ba. 6032	20,557	27·35	8·47	58·00	1·0694	1·69	·045	·165	88·95	2·7	3,323	5,616	Moderate.	1,103	406	1,509
Ba. 7924	19,163	23·98	8·79	54·00	1·0773	1·97	·048	·092	93·37	2·4	2,693	5,305	Moderate.	580	348	928
Ba. 8069	16,786	21·70	4·72	58·80	1·0809	2·00	·083	·127	90·50	4·2	2,645	5,290	V. slight.	47	47	94
Ba. 8409	16,759	20·94	4·30	56·00	1·0809	2·06	·050	·100	93·21	2·4	2,431	5,008	Moderate.	1,081	600	1,681
Ba. 8846	17,363	18·93	1·67	56·00	1·0870	2·26	·040	·070	95·86	1·8	2,184	4,936	Slight.	348	116	464

TABLE XXVI.—*Concluded.*- DODDS PLANTATION :—LEMON TREE FIELD. 1921—1923.

Plant Canes.

Name or No. of cane	No. of canes per acre.	Canes, tons per acre	Per cent. by number of rotten canes.	Per cent. juice by mill.	NORMAL JUICE. Sp. Gr. 30° C./16·6° C.	Lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of Marasmius sacchari, Wakker.	Insect pests per acre. *Diapprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.	Total.
Ba. 11403	16,548	20·25	4·39	55·00	1·0924	2·10	·013	·067	95·62	1·8	2,284	5,482	Moderate.	580	580	1,160
Ba. 11569	20,646	28·52	10·31	56·50	1·0814	2·19	·069	·041	95·22	3·2	3,328	7,288	Slight.	967	838	1,805
Ba. 12079... .. .	26,875	22·08	2·55	55·00	1·0800	1·83	·125	·225	83·94	6·8	2,519	4,610	Slight.	435	248	683
B. H. 10 (12)	13,298	25·28	9·17	60·50	1·0921	2·42	·071	·019	96·42	2·9	3,136	7,589	Slight.	696	116	812
B.S.F. 12 (27)	19,802	21·00	3·23	58·00	1·0791	1·98	·066	·114	91·67	3·3	2,528	5,005	Moderate.	406	...	406
B.S.F. 12 (45)	24,564	19·05	8·27	51·00	1·0756	1·81	·104	·156	87·44	5·7	2,143	3,879	Slight.	406	116	522
B.S.F. 12 (48)	25,086	28·78	none.	58·00	1·0861	2·19	·125	·035	93·19	5·7	3,472	7,604	Slight.	348	406	754
B.S.F. 12 (50)	19,943	21·28	3·01	60·00	1·0738	1·68	·132	·208	83·17	7·9	2,662	4,472	Slight.	600	180	780
B.S.F. 12 (53)	18,408	19·33	3·47	58·00	1·0817	2·00	·096	·134	89·69	4·8	2,320	4,640	Moderate.	348	580	928
B.S.F. 13 (8)	18,234	16·20	3·82	56·50	1·0844	1·94	·089	·271	84·35	4·6	1,891	3,669	Moderate.	406	58	464

TABLE XXVII.—SUMMERVALE PLANTATION.—UPPER GARDEN FIELD.

Plant Canes 1921-1923

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. $\frac{30°\ C.}{16·6°\ C.}$	lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Insect pests per acre. *Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.	Total.
White Transparent ..	17,595	23·64	6 93	57·50	1·0782	1·93	·109	·101	90·19	5·6	2,824	5,450	Bad	1,045	522	1,567
B. H. 10 (12)	17,015	27·17	2 73	63 00	1·0870	2·10	·125	·145	88·61	6 0	3,528	7,409	Slight.	638	522	1,160
B. 284	20,092	24·94	2 31	54·00	1·0870	2 26	·058	·052	95·45	2·6	2,775	6,272	Moderate.	464	754	1,218
B. 333	19,628	20·09	2·37	56·00	1·0826	1·96	·139	151	87·11	7·1	2,358	4,563	Moderate	348	406	754
B. 335	22,938	24 91	5·32	60·50	1·0809	1·98	·096	·134	89·59	4·8	3,127	6,191	Slight	497	497	994
B. 336	16,898	19·70	6·19	59·50	1·0817	1·95	·125	·155	87·44	6·4	2,428	4,735	Moderate.	232	638	870
B. 381	14,155	29·81	5·64	62 00	1·0765	1·86	·109	·121	88·99	5·9	3,816	7,154	Moderate.	580	362	942
B. 391	21,254	28·39	2·19	60·00	1·0835	2 13	·050	·100	93 42	2·3	3,521	7,500	Moderate.	580	580	1,160
S. 2001	21,196	23·12	5·21	6 ·50	1·0684	1 62	·147	·113	86·17	9·1	2,935	4,755	Moderate.	812	290	1,102
P. N.H. $\frac{11\ (6)}{15\ (2)}$	15,272	22·99	4·94	60·00	1·0773	1·89	·096	·124	89·57	5·1	2,869	5,42 2	Bad.	812	696	1,508
B. N.H. $\frac{11\ (6)}{15\ (4)}$	18,641	22·29	1·87	57·60	1·0861	1·99	·167	·193	84·68	8·4	2,649	5,272	V. slight.	580	232	812
Uba.	33,797	22·22	8·59	53·00	1·0773	1·60	·313	·197	75·83	19·6	2,448	3,917	Moderate.	406	580	986

TABLE XXVIII.—SUMMERVALE PLANTATION:—UPPER GROGAN FIELD.

Plant Canes. 1921-1923.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. $\frac{30^\circ C.}{16.6^\circ C.}$	Lb. per gallon of: Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius saccari*, Wakker.	Insect pests per acre. *Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.	Total.
W. Transparent	16,840	33·83	11·72	54·50	1·0694	1·59	·192	·118	83·69	12·1	3,862	6,141	Moderate.	290	348	638
B. H. 10 (12)	19,453	34·63	6·27	51·50	1·0853	2·00	·179	·141	86·21	8·9	3,681	7,362	Slight.	696	435	1,131
B. 368	19,672	29·81	1·85	60·00	1·0817	1·98	·125	·125	88·79	6·3	3,704	7,334	Slight.	580	116	696
B. 369	19,033	25·35	6·44	60·00	1·0800	1·94	·083	·157	88·99	4·3	3,154	6,119	Moderate.	174	638	812
B. 374	20,847	32·92	2·53	54·50	1·0870	2·14	·068	·162	90·29	3·2	3,698	7,914	Moderate.	464	418	882
B. 396	16,085	24·63	8·66	60·00	1·0853	2·07	·096	·154	89·22	4·6	3,050	6,314	Slight.	497	929	1,426
B. 397	17,120	29·95	2·81	51·50	1·0897	2·25	·104	·086	92·21	4·6	3,171	7,135	Moderate.	754	580	1,334
B. 398	19,860	21·31	0·88	55·00	1·0844	2·04	·089	·171	88·70	4·4	2,422	4,941	Moderate.	348	812	1,160
B. 405	13,467	19·74	5·47	59·50	1·0861	2·12	·078	·152	90·21	3·7	2,423	5,137	Slight.	580	348	928
B. 409	27,585	30·72	6·53	55·00	1·0879	2·19	·078	·122	91·63	3·6	3,479	7,619	Slight.	232	696	928
B. 417	12,543	22·55	5·48	62·00	1·0747	1·78	·125	·135	87·26	7·0	2,915	5,189	V. slight.	871	870	1,741
B. 425	18,989	35·08	4·89	59·00	1·0844	2·08	·069	·151	90·43	3·3	4,275	8,892	Slight.	871	194	1,065
Ba. 8192	15,040	21·13	4·63	59·00	1·0800	1·94	·083	·157	88·99	4·3	2,585	5,015	Moderate.	480	633	1,113
B. N. H. 16 (13)	18,234	24·58	5·41	59·00	1·0738	1·77	·104	·146	87·62	5·9	3,025	5,354	Slight.	600	464	1,064
S. C. $\frac{12}{4}$	16,666	23·07	4·53	54·50	1·0844	2·13	·096	·074	92·61	4·5	2,597	5,532	Moderate.	232	871	1,103

TABLE XXIX. - SUMMERVALE PLANTATION:—SOUTH STABLE FIELD. 1921—1923.

Plant Canes.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	NORMAL JUICE: Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of: Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Insect pests per acre. *Diapeyes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.	Total.
W. Transparent	19,976	29·29	7·56	61·50	1·0791	1·98	·074	·106	91·67	3·7	3,740	7,405	Bad.	1,045	754	1,799
B.H. (10 (12)	18,466	31·53	1·89	58·50	1·0879	2·25	·083	·057	94·14	3 7	3,810	8,573	Moderate.	929	406	1,335
B. 169	14,597	29·10	none	60·00	1·0765	1·91	·100	·080	91·39	5 2	3,633	6,939	Slight.	840	1,261	2,101
B. 177	14,285	23·05	1·22	53·50	1·0773	1·72	·156	·234	81·52	9·1	2,564	4,410	Bad	464	1,335	1,799
B. 204	19 163	28·39	3·03	63·00	1·0676	1·47	·227	·163	79·03	15·4	3,752	5,515	Slight.	871	1,219	2,090
B. 237	21,602	26·78	4·30	62·50	1·0747	1·87	·147	·023	91·67	7·9	3,461	6,472	Slight.	1,103	1,103	2 206
B. 240	23,785	29·16	1·97	59 50	1·0800	2·09	·054	·036	95·87	2·6	3,599	7,522	Slight.	...	603	603
B. 465	28,558	33·57	11·48	57·00	1·0721	1·83	·100	·040	92·89	5·5	3,998	7,316	Slight.	812	406	1,218
B. 466	21,660	18·07	18·50	56·00	1·0773	1·90	·114	·096	95·00	6·0	2,104	3,998	Moderate.	580	580	1,160
B. 467	27,409	22·55	12·71	57·00	1·0747	1·82	.125	·095	89·22	6·9	2,680	4,878	Moderate.	580	1,103	1,683
B. 468	21,079	26·86	1·38	58·50	1·0800	1·96	·063	·157	89·91	3·2	3,259	6,388	Slight.	.	580	580
B. 469	22,551	24·76	6·70	55·00	1·0747	1·88	·083	·077	92·16	4·4	2,838	5,335	Moderate.	522	522	1,044
B. 470	21,370	28·26	4·08	60·00	1·0712	1·65	·167	·133	84·62	10·1	3,545	5,849	Slight.	174	58	232
B. 472	17,357	31·02	1·08	60·50	1·0756	1·97	·066	·034	95·17	3·4	3,909	7,701	Moderate.	870	622	1,492
B. 476	17,131	18·54	15·25	59·50	1·0721	1·65	·179	·141	83·76	10·8	2,304	3,802	Slight.	696	754	1,450
B. 484	22,938	21·98	1·77	61·00	1·0712	1·81	·066	·094	92·82	3·6	2,804	5,075	Moderate.	464	871	1,335
B. 486	24,622	26·31	8·73	61·50	1·0676	1·69	·066	·104	90·86	3·9	3,395	5,738	Slight.	480	360	840
B. 487	16,956	16·23	12·33	62·00	1·0738	1·87	·096	·054	92·57	5·1	2,099	3,925	Moderate.	1 625	...	1,625
B. 488	18,292	20·80	6·55	53·50	1·0800	2·04	·054	·086	93·58	2·6	2,308	4,708	Moderate.	871	435	1,306
B. 490	18,699	29·04	3·73	57·00	1·0729	1·81	·104	·086	90·50	5·7	3,455	6,254	Slight.	464	871	1,335
B. 491	24,738	30·88	5·87	56·50	1·0773	1·79	·139	·181	84·83	7·8	3,627	6,492	Moderate.	812	348	1,160
B. 494	19,017	25·20	6·10	57·00	1·0809	2·07	·125	·015	93·67	6·0	2,976	6,160	Slight.	116	580	696
B. 499	16,898	27·22	3·09	59·00	1·0747	1·73	·179	·131	84·81	10·3	3,347	5,790	Slight.	1,201	600	1,801
B. 501	11,149	18·10	14·06	59·00	1·0703	1·50	·208	·222	77·72	13·9	2,234	3,351	Slight.	929	871	1,800
B. 5 2	22,996	22·74	2·78	52·00	1·0729	1·58	·192	·228	79·00	12·2	2,468	3,899	Slight.	696	58	754

TABLE XXX.—DODDS PLANTATION:—LOWER PADMORE FIELD.

Plant Canes.

1921-1923.

Name or No. of cane.	No of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30°C./16·6°C.	lb. per gallon of Saccharose.	lb. per gallon of Glucose.	lb. per gallon of Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Insect pests per acre. *Diaprepes abbreviatus*, Linn.	Insect pests per acre. *Phytalus smithi*, Arrow.	Insect pests per acre. Total.
W. Transparent	18,002	19·63	6·77	58·50	1·0791	2·04	·071	·049	94·45	3·5	2,383	4,861	Bad.	134	402	536
B. H. 10 (12)	21,892	31·52	3·18	60·50	1·0897	2·25	·100	·090	92·21	4·4	3,920	8,820	Moderate.	348	406	754
B. 432	21,776	22·37	4·27	58·00	1·0826	2·03	·081	·139	90·22	4·0	2,685	5,451	V. slight.	464	174	638
B. 439	19,744	22·94	2·35	61·00	1·0853	2·14	·083	·097	92·24	3·9	2,889	6,182	Moderate.	348	522	870
B. 441	23,925	22·68	5·83	57·00	1·0747	1·71	·089	·241	83·82	5·2	2,695	4,608	Slight.	580	348	928
B. 442	21,021	22·94	2·21	58·00	1·0844	2·10	·100	·100	91·30	4·8	2,749	5,773	Moderate.	290	174	464
B. 445	26,712	29·63	3·91	59·00	1·0773	1·75	·069	·291	82·94	3·9	3,635	6,361	Moderate.	58	116	174
B. 454	17,944	25·98	1·94	60·50	1·0826	2·01	·083	·157	89·34	4·1	3,252	6,537	Slight.	232	116	348
B. 458	15,527	23·50	4·88	56·50	1·0738	1·78	·083	·157	88·12	4·7	2,770	4,931	Slight.	984	681	1,665
B. 505	22,647	31·50	none.	59·50	1·0870	2·28	·063	·027	96·20	2·8	3,862	8,805	Moderate.	464	...	464
B. 506 ... — ..	21,544	31·39	1·08	55·50	1·0906	2·33	·069	·071	94·33	3·0	3,579	8,339	Slight.	232	290	522
B. 512	18,349	24·76	5·70	57·00	1·0817	2·16	·069	·001	96·86	3·2	2,922	6,312	Moderate.	116	116	232
B. 518	25,881	21·11	·96	61·50	1·0782	1·93	·089	·121	90·19	4·6	2,697	5,205	Moderate.	232	...	232
B. 521	18,465	21·31	7·55	58·00	1·0817	2·10	·076	·054	94·17	3·6	2,559	5,374	Moderate.	...	...	...
B. 525	18,989	23·20	·92	60·00	1·0835	2·20	·057	·023	96·49	2·6	2,878	6,332	Slight.	1,102	134	1,236
B. 526	26,130	24·37	2·22	51·50	1·0897	2·27	·081	·089	93·03	3·6	2,580	5,857	Slight.	29	...	29
B. 537	13,763	24·06	8·86	57·50	1·0782	1·98	·104	·056	92·53	5·3	2,874	5,691	Moderate.	638	116	754
B. 538	15,919	23·57	7·55	62·50	1·0694	1·73	·104	·066	91·05	6·0	3,086	5,339	Moderate.	540	360	900
B. 540	27,292	22·03	4·26	53·50	1·0906	2·31	·083	·077	93·52	3·6	2,421	5,593	Bad.	633	633	1,266
B. 541	19,162	22·13	2·80	55·50	1·0791	1·96	·104	·096	90·74	5·3	2,550	4,998	Moderate.	418	209	627
B. 546	14,634	17·50	5·56	54·00	1·0888	2·24	·069	·111	92·56	3·1	1,944	4,355	Moderate.	290	174	464
B. 547	26,404	18·50	6·25	52·00	1·0791	1·89	·104	·166	87·50	5·5	1,997	3,774	Slight.	653	762	1,415
B. 549	26,055	27·83	11·63	57·50	1·0844	2·12	·057	·123	92·17	2·7	3,306	7,000	Slight.	...	290	290
B. 560	10,904	13·42	1·78	58·50	1·0721	1·85	·096	·024	93·91	5·2	1,640	3,034	Moderate.	..	290	290
B. 565	19,918	22·55	9·91	52·50	1·0791	2·01	·066	·084	93·06	3·3	2,458	4,941	Slight	232	290	522
B. 568	12,596	14·24	15·43	62·50	·0703	1·81	·089	·031	93·78	4·8	1,863	3,372	V. slight.	194	58	252

TABLE XXXI.—CARRINGTON PLANTATION: NEW MILL FIELD. 1921–1923.

Plant Canes.

Name or No. of cane.		No. of canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests.	
			Canes.	Tops.	Produce.			Sp. Gr. $\frac{30°\ C.}{16.6°\ C.}$	Lb. per gallon of			Quotient of purity.	Glucose ratio.				*Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
									Saccharose.	Glucose.	Solids not sugar.							
W. Transparent	Series i ...	19,070	22·54	4·85	27·39	5·08	55·50	1·0814	2·16	·096	·044	93·91	4·4	2,584	5,581	Bad.	Free.	Free.
	Series ii	19,844	20·74	5·06	25·80	14·68	57·00	1·0879	2·31	·057	·023	96·65	2·5	2,434	5,623	Bad.	Free.	Free.
	Mean ...	...	21·64	4·96	26·60	...	...	...	2·24	...	...	95·28	...	...	5,602	...	...	...
B. 67 ...	Series i ...	19,747	29·71	4·73	34·44	2·21	62·50	1·0861	2·17	·083	·097	92·34	3·8	3,830	8,311	Moderate.	Free.	Free.
	Series ii ...	21,635	30·73	5·12	35·85	8·95	60·50	1·0858	2·12	·083	·117	91·38	3·9	3,837	8,131	Moderate.	Free.	Free.
	Mean ...	...	30·22	4·93	35·15	...	...	..	2·15	...	...	91·86	...	...	8,223	...	...	...
B. 85 ...	Series i ...	23,232	22·80	4·58	27·38	6·04	55·00	1·0888	2·18	·109	·131	90·08	5·0	2,579	5,622	Moderate.	Free.	Free.
	Series ii ...	24,490	19·66	3·46	23·12	5·93	54·50	1·0906	2·28	·074	·116	92·31	3·2	2,201	5,018	Moderate.	Free.	Free.
	Mean ...	...	21·23	4·02	25·25	...	...	..	2·23	...	...	91·29	...	..	5,320	..	...	...
B. 423 ...	Series i ..	19,699	26·38	4·65	31·03	6·14	51·00	1·0879	2·20	·063	·127	92·05	2·9	2,770	6,094	Moderate.	Free.	Free
	Series ii ...	20,812	26 21	4·00	30·21	7·44	54·50	1·0897	2·27	·074	·096	93·03	3·3	2,936	6,665	Slight.	Free.	Free.
	Mean ...	...	26·30	4·32	30·62	...	...	...	2·24	...	...	92·54	...	...	6,380	...	...	...
B. 6450 ...	Series i	22,264	31·70	4·43	36·13	3·26	59·50	1·0853	2·13	·104	·086	91·81	4·9	3,893	8,292	Mode ate.	Free.	Free
	Series ii ...	20,957	28·09	4·32	32 41	5·08	60·00	1·0861	2·16	·083	·107	91·91	3·8	3,476	7,508	Moderate.	Free.	Free.
	Mean ..	...	29·90	4·37	34·27	...	...	...	2·15	...	...	91·86	...	...	7,900	...	...	...
Ba. 6032 ...	Series i ...	16,650	27 70	3 57	31·27	2·62	55·00	1·0835	2·05	·074	·156	89·91	3·6	3,150	6,458	Slight	Free.	Free,
	Series ii ...	19,554	36·04	4·99	41 03	5·20	59·00	1·0844	2·14	·083	·077	93·04	3·9	4,392	9,399	Moderate.	Free.	Free.
	Mean ...	...	31·87	4·28	36·15	...	...	...	2·10	...	...	91·48	...	..	7,929	...	...	...
Ba. 7924 ...	Series i ...	19,070	25·89	4·00	29·89	3·55	56·50	1·0800	2·03	·069	·081	93·12	3·4	3,033	6,157	Moderate.	Free.	Free.
	Series ii ...	22,942	32·41	5·21	37·62	5·27	58·00	1·0861	2·22	·066	·064	94·47	3·0	3,877	8,607	Moderate.	Free.	Free.
	Mean ...	...	29·15	4·61	33·76	...	...	...	2·13	...	...	93·80	...	...	7,382	...	...	...

TABLE XXXI.—*concluded.* - CARRINGTON PLANTATION :—NEW MILL FIELD. 1921—1923.

Plant Canes

Name or No. of cane			No. of canes per acre.	Weight in Tons per Acre			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests.	
				Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6° C.	lb. per gallon of			Quotient of purity.	Glucose ratio.				*Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
										Saccharose.	Glucose.	Solids not sugar.							
Ba. 8069	...	Series i ...	17,666	27·05	4·43	31·48	3·29	59·50	1·0879	2·20	·104	·086	92 05	4·7	3,314	7,291	Slight.	Free.	Free.
		Series ii ...	17,327	30·75	4·28	35·03	5·31	55·50	1·0870	2·18	·063	·127	91·98	2·9	3,517	7,667	Slight.	Free.	Free.
		Mean ...	...	28·90	4 36	33·26	..	..	...	2·19	.	...	92·02	...	...	7,479	..	...	...
Ba. 11569	...	Series i ...	16,795	26 69	3·46	30·15	4·90	51·50	1·0915	2·34	·078	·072	93·98	3·3	2,985	6,984	Slight.	Free.	Free.
		Series ii ..	19,602	29 60	4·78	34·38	8·64	56 50	1·0942	2·42	·089	·051	94·53	3·7	3,424	8,286	Slight.	Free.	Free.
		Mean ...	...	28·15	4·12	32·27	..	...	..	2·38	...		94·26	...	...	7,635	...	..	..
B.H. 10 (12)	...	Series i ...	19,699	25·02	3·24	28·26	2·95	58 00	1·0978	2·49	·096	·074	93·61	3·9	2,963	7,378	Moderate.	Free.	Free.
		Series ii ...	20,812	29·67	4·30	33·97	4·88	55·50	1 0960	2·47	·069	·071	94·64	2·8	3,547	8,761	Moderate.	Free	Free.
		Mean ..	...	27·35	3·77	31·12	...	...	...	2·48	...	...	94·13	...	...	8,070	...	...	...

TABLE XXXII.—COVERLEY PLANTATION.—SUCK HOLE FIELD.

Plant Canes. 1921-1928.

Name or No. of cane.		No. of canes per acre.	Weight in tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons juice per acre.	Saccharose, lb. per acre.	Prevalence of *Maravamius saccharr*, Wakker.	Presence of insect pests.	
			Canes.	Tops.	Produce.			Sp. Gr. $\frac{30°\ C.}{16·6°\ C.}$	lb. per gallon of			Quotient of purity.	Glucose ratio.				*Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
									Saccharose.	Glucose.	Solids not sugar.							
White Transparent	Series i...	14,245	19·35	3·81	23·16	8·11	60·00	1·0817	2·10	·060	·070	94·17	2·9	2 404	5,048	Bad.	D.a.	Free.
	Series ii	14,599	19·80	2·97	22·77	9·12	59·00	1 0791	1·96	·093	·107	90·74	4·7	2,426	4,755	Bad	D.a.	Free.
	Mean ..	...	19·58	3·39	22·97	...	...	...	2·03	...	...	92·46	...	..	4,902	..	...	...
B. 67	Series i...	17,423	24·99	4·32	29·31	4·66	63·00	1·0853	2·16	·089	·071	93·10	4·1	3,249	7,018	Moderate.	D.a.	Free
	Series ii...	15,567	21·07	2·97	24·04	4·64	63·00	1·0817	2·04	·081	·109	91·48	4·0	2,748	5,606	Moderate	Free.	Free.
	Mean ..	...	23·03	3·65	26·68	...	..	...	2·10	...	...	92·29	...	...	6,312	...	...	...
B. 2001	Series i..	20,407	27·00	3·37	30·37	5·53	62·00	1·0817	2·01	·125	·095	90·14	6·2	3,467	6,969	Moderate.	D.a.	Free.
	Series ii...	17,181	26·11	3·21	29·32	2·35	60·00	1·0835	2·04	·083	·157	89·48	4·1	3,238	6,606	Slight.	Free.	Free.
	Mean ...	...	26·56	3·29	29·85	...	...	...	2·03	...	...	89·81	...	...	6,788	...	...	...
B. 6450	Series i...	17,261	20·80	2·70	23·50	6·54	59·50	1·0791	1·95	·089	·121	90·28	4·6	2,568	5,008	Moderate.	D.a.	Free
	Series ii .	18,108	23·64	3·51	27·15	4·01	59·50	1·0791	1·91	·083	·167	88·43	4·3	2,920	5,577	Moderate.	Free.	Free.
	Mean ..	...	22·22	3·11	25·33	...	...		1·93	..	...	89·36	...	...	5,293	...	...	...
Ba. 6032 ...	Series i...	15,325	23·37	2·61	25·98	8·42	59·50	1·0809	2·01	·066	·134	90·95	3·3	2,882	5,792	Slight	D.a.	Free.
	Series ii..	14,801	24·67	2·79	27·46	6·54	59·50	1·0835	2·11	·051	·116	92·54	5·6	3,034	6,402	Slight.	Free.	Free.
	Mean ...	...	24·02	2·70	26·72	...	...		2·06	...	...	91·75	...	...	6,097	...	...	...
Ba. 8069 ...	Series i...	15,809	22·78	3·15	25·93	1·53	58·50	1·0844	2·06	·096	·144	89·57	4·7	2,752	5,669	Slight.	D.a.	Free.
	Series ii...	14,841	20·76	2·61	23·37	4·89	60·50	1·0826	2·05	·093	·107	91·11	4·5	2,599	5,328	Slight.	D.a.	Free.
	Mean ..	...	21·77	2·88	24·65	...	...		2·06	...	...	90·34	...	...	5,499	...	...	...
Ba. 8409 ...	Series i...	18,552	19·44	2·88	22·32	0·87	56·50	1·0844	2·13	·052	·118	92·61	2·4	2,269	4,833	Moderate.	D.a.	Free.
	Series ii...	13,349	23·59	3·33	26·92	1·81	57·50	1·0835	2·12	·078	·082	92·98	3·7	2,804	5,944	Moderate.	D.a.	Free.
	Mean ...	...	21·52	3·10	24·62	...	...	...	2·13	...	...	92·80	...	...	5,389	—	...	...

TABLE XXXII—*Concluded.*— COVERLEY PLANTATION:—SUCK HOLE FIELD.

Plant Canes. 1921–1923.

Name or No. of cane.			No. of canes per acre.	Weight in tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests.	
				Canes.	Tops.	Produce.			Sp. Gr. $\frac{30°\ C.}{16·6°\ C.}$	lb. per gallon of.			Quotient of purity.	Glucose ratio.				*Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
										Saccharose.	Glucose.	Solids not sugar.							
Ba. 11569	...	Series i...	17,342	28·63	3·60	32·23	6·74	53·50	1·0888	2·27	·063	·087	93·80	2·8	3,151	7,153	Slight.	D.a.	Free.
		* Series ii...	17,302	21·52	1·98	23·50	32·63	57·00	1·0870	2·20	·066	·104	92·83	3·0	2,527	5,559	Slight.	D.a.	Free.
		Mean	...	25·08	2·79	27·87	...	...	...	2·24	..	...	93·32	..	...	6,356	...	..	...
B. H. 10 (12)	...	Series i...	16,777	19·23	2·49	21·72	11·54	60·00	1·0915	2·31	·071	·109	92·77	3·1	2,366	5,465	Moderate.	D.a.	Free.
		Series ii..	14,841	16·19	1·76	17·95	11·41	58·50	1·0924	2·36	·104	·046	94·02	4·4	1,942	4,583	Moderate.	D.a.	Free.
		Mean .	...	17·71	2·13	19·84	...	...	...	2·34	...	...	93·40	..	...	5,024	...	...	...

* Badly eaten by rats.

TABLE XXXIII.—WATERFORD PLANTATION:—SCHOOL HILL FIELD. 1921-1928.

Plant Canes.

Name or No. of cane.	No. of canes per acre.	Weight in Tons per acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
		Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of			Quotient of purity.	Glucose ratio.			
								Saccharose.	Glucose.	Solids not sugar.					
W. Transparent ... Series i ...	16,128	15·64	1·61	17·25	25·60	57·00	1·0817	1·94	·111	·176	87·00	5·9	1,846	3,581	Bad.
Series ii ...	15,168	19·76	1·20	20·96	8·23	58·00	1·0826	2·01	·074	·166	89·34	3·7	2,371	4,766	Bad.
Mean ...	...	17·70	1·41	19·11	...	...	...	1·98	...	...	88·17	...	...	4,174	...
B. 67 ... ... Series i ..	16,704	18·93	1·71	20·64	8·62	65·50	1·0870	2·11	·089	·171	89·03	4·2	2,560	5,402	Moderate.
Series ii	18,240	23·29	1·71	25·00	3·68	62·50	1·0879	2·18	·050	·160	91·21	2·3	2,998	6,536	Slight.
Mean ..	...	21·11	1·71	22·82	...	...	...	2·15	...	...	90·12	...	...	5,969	...
B. 6450 ... ... Series i ..	18,480	18·64	1·46	20·10	9·61	62·00	1·0791	1·88	·069	·211	87·04	3·7	2,899	4,510	Moderate.
Series ii	21,840	22·50	1·16	23·66	13·85	62·00	1·0817	1·96	·096	·174	87·89	4·9	2,889	5,662	Moderate.
Mean ..	...	20·57	1·31	21·88	...	...	...	1·92	...	...	87·47	...	...	5,086	...
Ba. 2471 ... ... Series i ...	24,672	19·93	1·61	21·54	7·00	57·50	1·0817	1·93	·083	·217	86·55	4·3	2,373	4,580	Moderate.
Series ii ..	19,968	18·54	0·77	19·31	12·98	58·00	1·0835	1·94	·058	·282	85·09	3·0	2,223	4,313	Slight.
Mean ..	...	19·24	1·19	20·43	...	...	...	1·94	...	...	85·82	...	...	4,447	...
Ba. 6032 ... ... Series i ..	16,320	26·56	1·18	27·74	8·82	64·00	1·0853	2·06	·086	·174	88·79	4·2	3,510	7,231	Slight.
Series ii ...	19,248	32·23	0·96	33·19	5·24	61·00	1·0844	2·00	·057	·243	86·96	2·9	4,061	8,122	Slight.
Mean ...	...	29·40	1·07	30·47	...	...	...	2·03	...	...	87·88	...	...	7,677	...
Ba. 11403 ... ... Series i ...	16,944	21·43	1·29	22·72	3·40	58·50	1·0933	2·27	·104	·166	89·37	4·6	2,568	5,829	Moderate.
Series ii ..	18,288	24·94	1·61	26·55	3·15	58·50	1·0969	2·35	·047	·233	89·35	2·0	2,980	7,003	Slight.
Mean ...	...	23·19	1·45	24·64	...	...	...	2·31	...	...	89·36	...	...	6,416	...
Ba. 11569 ... ... Series i ...	19,920	28·24	1·71	29·95	8·19	57·50	1·0861	2·07	·096	·184	88·09	4·6	3,349	6,932	Slight.
Series ii ..	16,176	30·09	1·20	31·29	20·77	59·50	1·0951	2·33	·096	·154	90·31	4·1	3,662	8,532	Slight.
Mean ..	...	29·17	1·45	30·62	...	...	...	2·20	...	...	89·20	...	—	7,732	...

TABLE XXXIII – *Concluded.* – WATERFORD PLANTATION—SCHOOL HILL FIELD. 1921—1923.

Plant Canes.

Name or No. of cane.		No. of canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
			Canes.	Tops.	Produce.			Sp. Gr. $\frac{30°\ C.}{16·6°\ C}$	Lb. per gallon of			Quotient of purity.	Glucose ratio.			
									Saccharose.	Glucose.	Solids not sugar.					
B.H. 10 (12)	Series i ...	19,005	22·46	1·61	24·07	10·10	62·00	1·0997	2·48	·053	·177	91·51	2·1	2,836	7,033	Slight.
	Series ii ...	15,504	24 11	0·92	25·03	5·57	61·50	1·1032	2·58	·083	·137	85·99	3·2	3,010	7,767	Slight.
	Mean ...	...	23·29	1·26	24·55	...	...	...	2·53	...	...	88·75	...	...	7,400	...
W. No. 2	Series i ...	16,704	19·56	1·18	20·74	4·02	57·00	1·0826	2·02	·043	·187	89·78	2·1	2,307	4,660	Moderate.
	Series ii ...	20,784	25·65	0·86	26·51	4·39	59·00	1·0800	1·93	·063	·187	88·53	3·3	3,139	6,058	Slight.
	Mean ...	...	22·61	1·02	23·63	...	...	...	1·98	...	...	89·16	...	...	5,359	...
B. S. F. 12(50)	Series i ...	17,664	26·53	1·39	27·92	4·08	60·50	1·0861	1·99	·074	·286	84·68	3·7	3,310	6,587	Slight.
	Series ii ...	18,810	24·09	0·96	25·05	10·20	59·00	1·0853	1·86	·278	·182	80·17	14·9	2,933	5,455	Slight
	Mean ...	...	25·31	1·18	26·49	...	...	...	1·93	...	...	82·43	...	...	6,021	...

TABLE XXXIV—PICKERINGS PLANTATION—RICE POND FIELD.

Plant Canes.

Name or No. of cane.		No. of canes per acre.	Weight in Tons per acre. Canes.	Tops.	Produce.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30° C./16·6° C.	Lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
W. Transparent ...	Series i ...	18,960	26·73	3·67	30·40	8·86	53·50	1·0879	2·18	·125	·085	91·29	5·7	2,945	6,420	Moderate.
	Series ii ...	17,424	20·29	3·32	23·61	11·57	51·00	1·0817	2·08	·061	·089	93·27	2·9	2,143	4,457	Moderate
	Mean ...	...	23·51	3·49	27·00	...	...	...	2·13	...	...	92·24	...	...	5,439	...
B. 39	Series i ...	21,216	37·01	2·57	39·58	10·86	59·50	1·0879	2·24	·096	·054	93·72	4·3	4,534	10,156	Slight.
	Series ii ...	18,096	28·95	3·75	32·70	6·90	57·50	1·0861	2·18	·069	·101	92·77	3·2	3,433	7,484	Slight.
	Mean ...	...	32·98	3·16	36·14	...	...	...	2·21	...	...	93·25	...	...	8,820	...
B. 268	Series i ...	16,944	34·78	4·09	38·87	8·50	60·00	1·0817	2·08	·147	·093	93·27	7·1	4,321	8,986	Slight.
	Series ii ...	16,080	35·36	4·16	39·52	4·48	58·50	1·0809	2·00	·104	·106	90·50	5·2	4,288	8,576	Moderate.
	Mean ...	...	35·07	4·13	39·20	...	...	...	2·04	...	...	91·89	...	...	8,781	...
B. 2001	Series i ...	21,600	34·59	4·11	38·70	6·22	58·50	1·0800	2·01	·083	·087	92·20	4·1	4,196	8,434	Slight.
	Series ii ...	20,448	32·01	4·24	36·25	2·11	59·00	1·0826	2·03	·089	·131	90·22	4·4	3,908	7,933	Slight.
	Mean ...	...	33·30	4·18	37·48	...	...	...	2·02	...	...	91·21	...	...	8,184	..
B. 6450	Series i ...	19,152	32·14	4·22	36·36	4·51	60·50	1·0835	2·13	·060	·090	93·42	2·8	4,020	8,563	Slight.
	Series ii ...	owing	to the	drou	ght in 1	921 th	ere we	re not	suffici	ent cut	tings t	o plan	t both	plots		
	Mean ...	...	..	..	..	...	...	...	...	...	...	...	...	...	...	...
Ba. 6032	Series i ...	17,328	34·67	4·14	38·81	8·31	61·00	1·0791	2·01	·045	·105	93·06	2·2	4,390	8,824	Slight
	Series ii ...	15,312	34·11	4·11	38·22	2·19	60·50	1·0809	1·94	·104	·166	87·78	5·4	4,277	8,297	Slight.
	Mean ...	...	34·39	4·13	38·52	...	...	...	1·98	...	...	90·42	...	...	8,561	...
Ba. 7924	Series i ...	20,760	37·42	4·79	42·21	2·02	59·00	1·0791	2·05	·069	·041	94·91	3·4	4,583	9,395	Moderate.
	Series ii ...	19,831	30·30	4·24	34·54	3·96	55·00	1·0791	1·96	·083	·117	90·74	4·2	3,459	6,780	Slight
	Mean ...	...	33·86	4·52	38·38	...	...	...	2·01	...	...	92·83	...	...	8,088	...

TABLE XXXIV—*Concluded.*—PICKERINGS PLANTATION:—RICE POND FIELD.

1921 1923.

Plant Canes.

Name or No. of cane.			No. of canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
				Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of			Quotient of purity.	Glucose ratio.			
										Saccharose.	Glucose.	Solids not sugar.					
Ba. 8069	...	Series i ...	18,060	40·93	5·12	46·05	3·65	61·50	1·0800	2·04	·089	·051	93·58	4·4	5,221	10,651	Slight.
		Series ii ...	21,312	29·25	4·95	34·20	3·38	57·50	1·0844	2·10	·083	·117	91·30	4·0	3,474	7,295	Slight.
		Mean ..	...	35·09	5·04	40·13	..	...	...	2·07	...		92·44	...	...	8,973	...
Ba. 11569	...	Series i ..	20,112	38·59	4·61	43·20	3·82	60·50	1·0879	2·29	·048	·052	95·82	2·1	4,808	11,010	Slight.
		Series ii ...	18,240	33·64	4·03	37·67	2·11	56·00	1·0879	2·13	·139	·121	89·12	6·5	3,879	8,262	Slight.
		Mean .	...	36·12	4·32	40·44	...	...	...	2·21	...	...	92·47	...	..	9,636	
B. H. 10 (12) ...		Series i ...	19,536	34·18	4·29	38·47	0·98	58·00	1·0906	2·34	·057	·073	94·74	2·4	4,072	9,531	Slight.
		Series ii ...	17,328	28 03	4·11	32·14	4·16	57·00	1·0942	2·33	·156	·074	91·02	6·7	3,268	7,614	Slight.
		Mean ...	...	31·11	4·20	35·31	...	...	...	2·34	..	..	92·88	...	...	8 573	...
B. S. F. 13 (14)	...	Series i ...	18,482	32·57	4·93	37·50	2·86	56·50	1·0782	1·88	·089	·171	87·85	4·7	3,823	7,187	Slight.
		Series ii ...	19,920	32·25	5·46	37·71	5·78	60·40	1·0835	2·02	·078	·182	88·60	3·9	4,027	8.135	Slight.
		Mean ...	...	32·41	5·20	37·61	...	...	—	1·95	...	...	88·23	...	...	7,661	...

TABLE XXXV.—WALKERS PLANTATION:—BRIMSTONE FIELD. *Plant Canes.* 1921-1923.

Name or No. of cane.		No. of canes per acre.	Weight in tons per acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Mesosmius saccheri*, Wakker.	Presence of insect pests.	
			Canes.	Tops.	Produce.			Sp. Gr. 30°C./16·6°C.	lb. per gallon of			Quotient of purity.	Glucose ratio.				*Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
									Saccharose.	Glucose.	Solids not sugar.							
W. Transparent	Series i ...	15,563	26·83	1·81	28·64	11·94	58 75	1·0844	2·06	·053	·187	89·57	2·6	3,252	6,699	Bad.	D.a	Free.
	Series ii ...	17,595	28·02	2·15	30·17	7·26	56·50	1·0809	1·97	·053	·187	89·14	2·7	3,281	6,464	Pad.	D.a	Free.
	Mean ...	...	27·43	1·98	29·41	...	...	...	2·02	..	..	89·36	...	...	6,582	...	...	...
B. 6450 ...	Series i ...	18,292	30·77	3·08	33·85	1·27	63·00	1·0861	2·04	·050	·260	86·81	2·5	3,998	8,156	Slight.	D.a	Free.
	Series i ...	17,247	37·05	1·61	38·66	3·03	62·00	1·0817	1·97	·069	·191	88·34	3·5	4,756	9,369	Slight.	D.a	Free.
	Mean ...	...	33·91	2·35	36·26	...	...	...	2·01	...	...	87·58	...	...	8,763	...	...	...
Ba. 6032 ...	Series i ...	16,143	33·88	1·69	35·57	2·88	62·50	1·0782	1·84	·081	·219	85·98	4·4	4,400	8,096	Slight.	D.a	Free.
	Series ii ...	19,976	53·53	3·11	56·64	2·62	62·50	1·0800	1·92	·071	·189	88·07	3·7	6,940	13,325	Slight.	D.a	Free.
	Mean ...	...	43·71	2·40	46·11	...	...	...	1·88	...	...	87·03	...	...	10,711	...	...	...
Ba. 7924 ...	Series i ...	21,660	28·85	2·13	30·98	2·95	58·00	1·0800	1·86	·050	·270	85·32	2·7	3,471	6,456	Slight.	D.a	Free
	Series ii ...	23,112	37·54	2·10	39·64	3·27	62·50	1·0817	1·99	·104	·136	89·24	5·2	4,858	9,667	Moderate.	D.a	Free.
	Mean ...	...	33·20	2·11	35·31	...	...	...	1·93	...	...	87·28	...	...	8,062	...	...	...
Ba. 11569 ...	Series i ...	22,938	43·99	3·63	47·62	5·56	61·25	1·0933	2·35	·037	·153	92·52	5·6	5,521	12,974	Slight.	D.a	Free
	Series ii ...	23,518	53·46	2·98	56·44	3·70	59·50	1·0897	2·18	·125	·135	89·35	5·7	6,539	14,255	Slight.	D.a	Free.
	Mean ...	...	48·73	3·30	52·03	...	...	...	2·27	...	...	90·94	...	...	13,615	...	...	...
B.H. 10 (12)	Series i ...	19,512	37·75	2·28	40·03	0·89	61·00	1·0906	2·21	·054	·206	89·47	2·4	4,729	10,451	Slight	D.a	Free,
	Series ii ...	17,653	40·31	1·76	42·07	5·26	63·50	1·0879	2·17	·074	·146	90·80	3·4	5,271	11,438	Slight.	D.a	Free.
	Mean ...	...	39·03	2·02	41·05	...	...	...	2·19	...	...	90·14	...	...	10,945	...	...	...
Haw. 146 ...	Series i ...	21,892	36·55	2·33	38·91	4·77	60·00	1·0809	1·98	·052	·178	89·59	2·6	4,545	8,999	Slight.	D.a	Free.
	Series ii ...	14,982	30·38	1·94	32·32	3·10	58·50	1·0800	1·87	·089	·221	85·78	4·8	3,687	6,895	Slight	D a	Free.
	Mean ...	...	33·47	2·15	35·62	...	...	...	1·93	...	...	87·69	...	...	7,947	...	...	...

TABLE XXXVI.—CLIFTON HALL PLANTATION:—LOWER GOAT FIELD.

Plant Canes. 1921—1923.

Name or No. of cane.		No. of canes per acre.	Weight in tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests.	
			Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of			Quotient of purity.	Glucose ratio.				*Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
									Saccharose.	Glucose.	Solids not sugar.							
W. Transparent	Series i ..	20,441	20·89	4·02	24·91	9·09	60·50	1·0791	2·04	·063	·057	94·45	3·1	2,624	5,353	Bad.	Free.	Free.
	Series ii ...	24,447	22·87	3·37	26·24	15·44	62·00	1·0712	1·81	·063	·077	92·82	3·5	2,964	5,366	Bad.	Free.	Free.
	Mean ..	...	21·88	3·70	25·58	...	...	...	1·93	...	...	93·64	...	...	5,360	...	...	...
B. 67 ...	Series i ..	...	(This	series	was a	ll made	into	cuttings	for	planting).						Slight.	Free.	Free.
	Series ii ..	27,003	38·63	4·61	43·24	14·41	68·60	1·0747	1·81	·125	·105	88·73	6·9	5,523	9,997	Moderate.	Free	Free.
B. 6450 ...	Series i ...	20,184	33·52	2·82	36·34	4·76	69·00	1·0782	1·98	·058	·102	92·53	2·9	4,805	9,514	Slight.	Free.	Free.
	Series ii ...	28,977	56·93	5·13	62·06	11·42	68·25	1·0826	2·06	·069	·121	91·56	3·3	8,039	16,560	...	...	...
	Mean ..	..	45·23	3·97	49·20	...	...	...	2·02	...	...	92·05	...	...	13,037	Slight.	Free.	Free.
Ba. 6032 ...	Series i ...	19,047	37·93	3·24	41·17	2·44	63·00	1·0721	1·78	·093	·097	90·36	5·2	4,992	8,886	Slight.	Free.	Free.
	Series ii ...	21,021	48·71	3·06	51·77	0·83	67·50	1·0800	1·97	·074	·136	90·37	3·8	6,820	13,435	...	...	...
	Mean ...	...	43·32	3·15	46·47	...	...	...	1·88	...	...	90·87	...	...	11,161	Moderate.	Free.	Free.
Ba. 7924 ...	Series i ...	30,603	38·63	4·28	42·91	2·47	64·00	1·0747	1·91	·071	·059	93·63	3·7	5,153	9,842	Moderate.	Free.	Free.
	Series ii ..	33,448	50·81	5·18	55·99	1·04	65·75	1·0826	2·10	·063	·087	93·33	3·0	6,912	14,515	...	...	...
	Mean ..	...	44·72	4·73	49·45	...	...	...	2·01	...	..	93·48	...	...	12,179			
Ba. 11569 ...	Series i ..	28,919	42·36	4·10	46·46	14·06	64·50	1·0844	2·14	·071	·089	93·04	3·3	5,644	12,078	Slight.	Free.	Free.
	Series ii ...	23,693	43·79	4·67	48·46	12·25	65·50	1·0897	2·27	·063	·107	93·03	2·8	5,895	13,382	Slight.	Free.	Free
	Mean ...	...	43·08	4·38	47·46	...	...	...	2·21	...	..	93·04		...	12,730	...	..	...
Ba. 12079 ...	Series i ...	36,700	51·85	5·16	57·01	6·33	63·50	1·0747	1·84	·096	·104	90·20	5·2	6,862	12,626	Slight.	Free	Free.
	Series ii ...	28,629	42·52	5·44	47·96	3·65	65·00	1·0756	1·83	·147	·093	88·41	8·0	5,755	10,532	Slight.	Free.	Free.
	Mean ...	...	47·19	5·30	52·49	...	...	...	1·84	...	...	89·31	...	...	11,579	...	...	...
B.H. 10 (12) ...	Series i ...	31,300	47·96	4·67	52·63	6·49	66·00	1·0782	1·96	093	·087	91·59	4·7	6,576	12,889	Slight.	Free.	Free
	Series ii ...	21,834	47·13	3·84	50·97	2·13	63·50	1·0924	2·33	·066	·114	92·83	2·8	6,137	14,299	Slight.	Free.	Free.
	Mean ...	...	47·55	4·25	51·80	...	...	...	2·15	...	...	92·21	...	...	13,594	..	...	—

TABLE XXXVII.—HENLEY PLANTATION:—TODDS MILL FIELD.

Plant Canes. 1921–1928.

Name or No. of cane.	No. of canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
		Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of			Quotient of purity.	Glucose ratio.			
								Saccharose.	Glucose.	Solids not sugar.					
W. Transparent ... Series i ...	13,482	12·17	3·55	15·72	25·2[illegible]	53·50	1·0738	1·86	·086	·074	92·08	4·6	1,359	2,5[illegible]8	Moderate.
Series ii ..	15,09[illegible]	15·94	4·61	20·55	8·46	59·50	1·0809	1·96	·114	·136	88·69	5·8	1,966	3,853	Bad.
Mean ...	...	14·06	4·08	18·14	...	...	.	1·91	...	...	90·39	...	...	3,191	...
B. 67 ... ... Series i ...	13,472	18·23	3·89	22·12	6·90	59·00	1·0826	2·09	·089	·071	92·89	4·3	2,225	4,650	Slight.
Series ii ...	15,389	22·45	4·25	26·70	2·64	60·80	1·0817	1·95	·156	·124	87·44	8·0	2,[illegible]27	5,513	Slight.
Mean ...	...	20·34	4·07	24·41	...	...	...	2·02	...	...	90·17	...	...	5,082	...
B. 3922 ... ... Series i ...	12,892	15·89	3·63	19·52	0·81	58·50	1·0765	1·96	·096	·034	93·78	4·9	1,934	3,791	Moderate.
Series ii ...	11,672	19·57	3·84	23·41	2·99	64·00	1·0826	1·97	·156	·124	87·56	7·9	2,592	5,106	Slight.
Mean ...	...	17·73	3·74	21·47	...	...	...	1·97	...	...	90·67	...	...	4,449	...
B. 6450 ... ... Series i ...	16,080	19·26	4·13	23·39	7·50	59·50	1·0800	2·03	·069	·081	93·12	3·4	2,377	4,825	Moderate.
Series ii ...	16,782	20·22	4·82	25·04	12·80	62·00	1·0817	1·92	·096	·214	86·10	5·0	2,596	4,984	Moderate.
Mean ...	...	19·74	1·48	24·22	...	...	...	1·98	...	...	89·61	...	...	4,905	...
Ba. 2471 .. ... Series i ...	23,054	20·09	4·28	24·37	5·04	54·00	1·0835	2·07	·081	·129	90·79	3·9	2,243	4,643	Slight.
Series ii ...	20,615	21·13	3·63	24·76	2·64	55·50	1·0782	1·95	·083	·107	91·12	4·3	2,436	4,750	Slight.
Mean ...	..	20·61	3·96	24·57	...	...	...	2·01	...	...	90·96	...	...	4,697	...
Ba. 6032 ... ... Series i ...	16,956	31·16	4·67	35·83	5·82	58·00	1·0756	1·93	·076	·064	93·24	3·9	3,764	7,265	Slight.
Series ii ...	14,[illegible]27	27·35	4·10	31·45	3·27	64·00	1·0738	1·87	069	081	92·57	3·7	3,652	6,829	Slight.
Mean ...	...	29·26	4·38	33·64	...	...	...	1·90	....	...	92·91	...	...	7,047	...
Ba. 7924 ... Series i ..	21,718	20·61	4·02	24·63	9·63	58·00	1·0778	1 99	·063	·057	94·31	3·2	2,485	4,945	Moderate.
Series ii ..	13,748	18·61	3 75	2·36	4·52	56·00	1·0782	2·02	·082	·027	94·39	4·1	2,[illegible]65	4 373	Slight.
Mean ...	...	19·61	3·89	23·50	...	...	...	2·01	..	...	94·35	...	...	4,659	...

TABLE XXXVII *Concluded.* HENLEY PLANTATION—TODDS MILL FIELD.

Plant Canes. 1921—1923.

Name or No. of cane.	No. of canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
		Canes.	Tops.	Produce.			Sp. Gr. $\frac{30°\ C.}{16·6°\ C}$	Lb. per gallon of			Quotient of purity.	Glucose ratio.			
								Saccharose.	Glucose.	Solids not sugar.					
*Ba 11569 ... ... Series i ...	25,667	24·24	4·28	28·52	31·67	55·00	1·0800	2·07	·096	·014	94·95	4·3	2,765	5,724	Slight.
Series ii ...	18,041	13·83	2·72	16·55	48·28	61·00	1·0782	1·94	·163	·137	90·66	8·2	1,753	3,401	Moderate.
Mean ..	...	19·04	3·50	22·54	...	...	...	2·01	...	...	92·81	...	...	4,563	...
B.H. 10 (12) ... ... Series i...	15,737	28·15	4·85	33·00	2·21	61·50	1·0853	2·21	·078	·032	95·26	3·5	3,574	7,899	Moderate.
Series ii...	14,982	26·70	4·93	31·63	3·10	65·00	1·0853	2·18	·061	·076	93·97	2·9	3,582	7,809	Moderate.
Mean ...	...	27·43	4·89	32·32	...	...	...	2·20	...	...	94·62	...	...	7,854	...

* Badly eaten by rats.

TABLE XXXVIII.—LEMON ARBOR PLANTATION:—SOUTH WILSON POND FIELD.

Plant Canes. 1921—1923.

Name or No. of cane.		No. of canes per acre.	Weight in Tons per acre			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Prevalence of Root borer.
			Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of			Quotient of purity.	Glucose ratio.				
									Saccharose.	Glucose.	Solids not sugar.						
W. Transparent ..	Series i ...	13,709	19·98	3·21	23·19	8·29	62·50	1·0826	2·14	·069	·041	95·11	3·2	2,584	5,530	Moderate.	Free
	Series ii ...	11,904	18·33	2·85	21·18	9·27	62·50	1·0765	1·88	·096	·114	89·95	5·1	2,384	4,482	Bad.	Free.
	Mean ...	..	19·16	3·03	22·19	..	..	...	2·01	...	...	92·53	...	...	5,006		...
B. 67	Series i ..	17,595	30·64	3·09	33·73	5·28	66·00	1·0835	2·07	·078	·132	90·79	3·8	4,181	8,655	Slight.	Free.
	Series ii ..	16,260	33·18	3·01	36·19	4·29	67·50	1·0835	2·13	·114	·036	93·42	5·4	4,631	9,864	Slight.	Free.
	Mean ...	...	31·91	3·05	34·96	...	...	...	2·10	...	...	92·11	...	...	9,260	..	...
B. 6450	Series i ..	17,421	31·68	3·14	34·82	1·67	66·00	1·0826	2·10	·093	·057	93·33	4·4	4,326	9.085	Slight.	Free.
	Series ii ...	21,486	30·46	3·78	34·24	5·68	67·50	1·0826	2·08	·074	·096	92·44	3·6	4,251	8,842	Slight.	Free.
	Mean ...	...	31·07	3·46	34·53	..	...	...	2·09	...	..	92·89	...	...	8,964	...	...
Ba. 2471	Series i ...	22,822	36·76	4·41	41·17	1·78	59·00	1·0809	1·90	·096	·214	85·97	5·1	4,494	8,539	Slight.	Free.
	Series ii ...	17,554	27·88	3·59	31·47	6·48	59·00	1·0800	1·85	·179	·151	84·86	9·7	3,411	6,310	Slight.	Free.
	Mean ...	...	32 32	4·00	36·32	...	...	...	1·88	...	...	85·42	..	...	7,425	...	...
Ba. 6032	Series i ...	14,401	37·98	3·03	41·01	None.	63·50	1·0800	2·02	·069	·091	92·66	3·4	5,002	10,104	Slight.	Free.
	Series ii ...	15,272	35·83	2·46	38·29	None.	63·50	1·0817	2·08	·125	·025	93·27	6·0	4,674	9,722	Slight.	Free.
	Mean ...	...	36·91	2·74	39·65	...	...	...	2·05	...	...	92·97	...	...	9,913	..	...
Ba. 11569 ...	Series i ...	13,696	20·78	2·74	23·52	33·77	63·50	1·0888	2·30	·089	·031	95·04	3·9	2,715	6,245	Slight.	Free.
	Series ii ...	15,795	22·94	1·92	24·86	25·00	62·00	1·0853	2·20	·083	·037	94·83	3·8	2,936	6,459	Slight.	Free.
	Mean ...	...	21·86	2·33	24·19	...	...	...	2·25	...	...	94·94	...	...	6,352	...	...
B.H. 10 (12) ...	Series i ...	17,595	41·28	3·06	47·34	None.	64·50	1·0835	2·11	·078	·092	92·54	3·7	5,904	12,457	Slight.	Free.
	Series ii ...	17,015	40·65	3·63	44·28	None.	62·50	1·0870	2·14	·104	·126	90·29	4·9	5,235	11,203	Slight.	Free.
	Mean ...	...	42·47	3·34	45·81	...	...	...	2·13	...	...	91·42	...	...	11,830	...	...

TABLE XXXIX.—CLIFTON HALL PLANTATION:—UPPER GOAT FIELD. 1921—1923.

First Ratoons.

Name or No. of cane.		No. of canes per acre.	Weight in tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests.	
			Canes.	Tops.	Produce.			Sp. Gr. $\frac{30°\ C.}{16·6°\ C.}$	Lb. per gallon of			Quotient of purity.	Glucose ratio.				*Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
									Saccharose.	Glucose.	Solids not sugar.							
W. Transparent	Series i ...	19,744	18·15	3·27	21·42	14·71	61·50	1·0747	1·82	·104	·116	89·22	5·7	2,336	4,233	Bad.	Free	Free.
	Series ii ...	20,557	25·66	2·92	28·38	6·79	62·00	1·0809	2·07	·069	·071	93·67	3·3	3,298	6,827	Bad.	Free.	Free.
	Mean ...	..	21·91	2·99	24·90	...	...	...	1·95	...	...	91·45	...	...	5,530		...	...
B. 67	Series i ...	19,918	33·34	3·85	37·17	10·20	67·00	1·0825	2·08	·114	·086	91·23	5·5	4,618	9,605	Moderate.	Free	Free.
	Series ii ...	19,047	35·31	3·76	39·07	7·63	67·00	1·0809	2·04	·083	·087	92·31	4·1	4,902	10,000	Moderate.	Free.	Free.
	Mean ...	...	34·33	3·79	38·12	...	...	...	2·06	..	...	91·77	...	...	9,803	...	...	...
B. 6450	Series i ...	13,821	16·85	3·24	20·09	16·81	67·50	1·0756	1·85	·086	·134	89·37	4·6	2,369	4,383	Bad.	Free.	Free.
	Series ii ..	20,092	36·21	3·11	39·35	5·20	68·75	1·0800	2·00	·074	·106	91·74	3·7	5,168	10,336	Moderate.	Free.	Free.
	Mean ...	...	26·55	3·17	29·72	...	...	..	1·93	...	...	90·56	...	...	7,360	...	...	...
B. 6032	Series i ...	15,853	31·52	3·11	34·63	3·66	65·75	1·0712	1·73	·100	·120	88·72	5·8	4,334	7,498	Slight.	Free.	Free
	Series ii ...	24,389	43·94	3·47	47·41	2·38	64·50	1·0782	1·96	·078	·102	91·59	4·0	5,888	11,540	Slight.	Free.	Free
	Mean ..	..	37·73	3·29	41·02	...	...	...	1·85	...	...	90·16	...	...	9,519	...	...	...
Ba. 7924	Series i ..	19,163	28·26	3·58	31·84	3·64	63·25	1·0817	2·09	·083	·057	93·72	4·0	3,701	7,735	Moderate	Free.	Free.
	Series ii ...	29,151	41·22	3·37	44·59	2·39	65·50	1·0835	2·13	·083	·067	93·42	3·9	5,582	11,889	Moderate.	Free.	Free
	Mean ..	...	34·74	3·48	38·22	...	...	...	2·11	..	...	93·57	...	...	9,812	...	...	...
Ba. 12079	Series i ..	34,726	38·89	4·02	42·91	5·02	62·00	1·0835	1·98	·167	·133	86·84	8·4	4,984	9,868	Slight.	Free.	Free.
	Series ii ...	34,319	38·63	3·76	42·39	2·20	62·75	1·0826	2·05	·083	·117	91·11	4·0	5,015	10,281	Moderate.	Free.	Free.
	Mean .	...	38·76	3·89	42·65	...	...	...	2·02	...	...	88·98	...	...	10,075	...	...	...
B.H. 10 (12)	Series i ..	25,841	39·14	3·78	42·92	3·60	66·25	1·0826	2·07	·100	·080	92·00	4·8	5,365	11,106	Slight.	Free.	Free.
	Series ii ...	29,151	44·07	4·15	48·22	2·39	65·00	1·0870	2·20	·063	·107	92·83	2·9	5,903	12,987	Slight.	Free.	Free.
	Mean ...	...	41·61	3·96	45·57	...	...	...	2·14	...	...	92·42	...	...	12,047	...	...	...

TABLE XL.—HENLEY PLANTATION:—SWAMP FIELD.

First Ratoons. 1921-1923.

Name or No. of cane.		No. of canes per acre.	Weight in Tons per acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre	Saccharose, lb. per acre.	Prevalance of *Marasmius sacchari*, Wakker.
			Canes.	Tops.	Produce.			Sp. Gr. 16·6° C. / 30° C.	Lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.			
W. Transparent	Series i ..	15,040	14·90	4·41	19·31	3·86	54·00	1·0756	1·96	·089	·021	94·69	4·5	1,677	3,287	Bad.
	Series ii ...	14,750	13 38	2·90	16·28	4·73	59·00	1·0747	1·93	057	·053	94·61	3·0	1,645	3,175	Bad.
	Mean ...	...	14·14	3·66	17·80	...	...	...	1·95	...	...	94·65	...	...	3,231	...
B. 67	Series i ..	19,918	23·02	5·83	28·85	2·91	60·00	1·0800	2·04	·076	·061	93·58	3·7	2,865	5,845	Moderate.
	Series ii ..	23,693	23·64	3·71	27·35	2·45	66·75	1·0800	2·03	·069	·081	93·12	3·4	3,273	6,644	Moderate.
	Mean ...	...	23·33	4·77	28·10	...	...	...	2·04	...	...	93·35	...	...	6,245	...
B. 3922	Series i ..	21,651	20·05	4·34	24·39	4·60	57·00	1·0773	2·02	·078	·012	95·74	3·9	2 377	4,802	Moderate.
	Series ii ..	18,640	18·30	3·11	21·41	3·74	64·00	1·0809	2·10	·063	·047	95·02	3·0	2,427	5,097	Moderate.
	Mean ...	...	19·18	3·72	22·90	...	...	...	2·06	...	...	95·38	...	...	4,950	...
B. 6450	Series i ...	38,448	35·66	7·50	43·16	3·88	57·50	1·0791	2·03	·096	·034	93·98	4·7	4,257	8,642	Moderate.
	Series ii ..	14,053	10·53	2·54	13·07	8·26	63·50	1·0782	1·97	·066	·104	92·06	3·4	1,388	2,734	Moderate.
	Mean ..	...	23·10	5·02	28·12	...	...	...	2·00	...	...	93·02	...	...	5,688	...
Ba. 2471	Series i ...	35,473	28·81	5·47	34·28	4·91	59·50	1·0853	1·97	·227	·123	84·91	11·5	3,538	6,970	Moderate.
	Series ii ..	21,949	16·80	3·27	20·07	4·76	60·50	1·0809	2·00	·078	·132	90·50	3·9	2,1 6	4,212	Moderate.
	Mean ...	...	22·81	4·37	27·18	...	...	...	1·99	...	...	87·71	...	...	5,591	...
Pa. 6052	Series i ..	19,534	30 99	3·75	34·74	2·55	63·50	1·0773	1·91	·104	·096	90·52	5·4	1,092	7,816	Slight.
	Series ii ...	19,534	21·86	2·50	24 36	2·55	64·50	1·0765	1·93	·074	·086	92·34	3·8	2,9 3	5,661	Slight.
	Mean ..	...	26·43	3·12	29·55	...	...	...	1·92	...	...	91·43	...	...	6,739	...
Pa. 7924	Series i ..	18,292	29·22	4·02	33·24	2·22	61·00	1·0782	1·97	·083	·087	92·06	4·2	3,703	7,295	Slight.
	Series ii ..	23,876	23 97	3·66	27·63	4·29	62·50	1·0773	2·00	·052	·058	94·79	2·6	3,115	6,230	Moderate.
	Mean ...	...	26·60	3·84	30·44	...	...	...	1·99	...	...	93·43	...	...	6,763	...

TABLE XL.—*Concluded.* HENLEY PLANTATION:—SWAMP FIELD.

First Ratoons. 1921–1923.

Name or No. of cane.			No. of canes per acre.	Weight in Tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
				Canes.	Tops.	Produce.			Sp. Gr. $\frac{30^\circ C.}{16.6^\circ C.}$	Lb. per gallon of			Quotient of purity.	Glucose ratio.			
										Saccharose.	Glucose.	Solids not sugar.					
Ba. 11569	...	Series i ...	15,807	17·40	3·31	20·71	6·53	60·50	1·0835	2·13	·083	·067	93·42	3·9	2,176	4,635	Moderate.
		Series ii ...	20,392	19·76	4·57	24·33	7·04	60·00	1·0800	2·07	·074	·036	94·95	3·6	2,159	5,090	Slight.
		Mean ...	...	18·58	3·94	22·52	...	...	...	2·10	...	..	94·19	...	...	4,863	..
B.H. 10 (12)	..	Series i ...	18,321	22·53	3·62	26·15	2·62	60·50	1·0879	2·13	·083	·177	89·12	3·9	2,806	5,977	Moderate.
		Series ii ...	26,867	30 27	5 56	35·83	2·49	62·50	1·0879	2·22	·063	·107	82 89	2 8	3,895	8,647	Slight.
		Mean ...	....	26·40	4·59	30·99	...	...	...	2·18	...	..	91·01	...	...	7,312	...

TABLE XLI - LEMON ARBOR PLANTATION.—NORTH PUMP POND FIELD.

First Ratoons. 1921-1923

Name or No. of cane.		No. of canes per acre.	Weight in tons per Acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*,
			Canes.	Tops.	Produce.			Sp. Gr. 30° C. / 16·6 °C.	Lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.			
W. Transparent	Series i ...	18,930	24·63	6·12	30·75	26·38	61·50	1·0826	2·11	·069	071	93·78	3·3	3,134	6,613	Bad
	Series ii ...	16,202	22·29	4·28	26·57	19·36	59·50	1·0844	2·21	·089	·061	96·09	4·0	2,740	6,055	Bad
	Mean ...	...	23·46	5·20	28·66	...	...	...	2·16	...	...	94·94	...	...	6,334	...
B. 67	Series i ...	17,699	22·39	5·44	27·83	33·86	66·00	1·0870	2·13	·114	·126	89·87	5·1	3,046	6,488	Moderate.
	Series ii ..	11,498	13·61	3·37	16·98	37·88	61·00	1·0835	1·93	·227	·123	84·65	11·8	1,716	3,312	Slight.
	Mean ...	...	18·00	4·41	22·41	...	...	...	2·03	...	...	87·26	...	...	4,900	...
B. 6450	Series i ...	18,582	24·77	5·33	30·10	23·61	62·50	1·0800	1·92	·114	·146	88·07	6·0	3,211	6,165	Slight.
	Series ii ...	18,466	23·46	3·63	27·09	16·35	62·50	1·0844	2·16	·063	·077	93·91	2·9	3,029	6,543	Moderate.
	Mean ...	...	24·12	4·48	28·60	...	...	...	2·04	...	...	90·99	...	...	6,354	...
Ba. 6032	Series i ..	20,673	35·78	5·86	41·64	2·81	62·50	1·0826	2·04	·096	·114	90·67	4·7	4,626	9,437	Slight.
	Series ii ..	22,996	38·10	5·94	44·04	none	60·80	1·0861	2·13	·119	·101	90·64	5·6	4,778	10,177	Slight.
	Mean ...	...	36·94	5·90	42·84	...	...	...	2·09	...	...	90·66	...	...	9,807	...
Ba. 7924	Series i ..	18,002	27·87	5·18	33·05	16·13	60·50	1·0844	2·16	·061	·079	93·91	2·8	3,483	7,523	Moderate.
	Series ii ..	23,983	32·79	4·80	37·59	7·24	61·50	1·0861	2·18	·074	·096	92·77	3·4	4,160	9,069	Slight.
	Mean ..	...	30·33	4·99	35·32	...	...	...	2·17	...	...	93·34	...	...	8,296	..
*Ba. 11569	Series i ...	9,145	12·64	3·40	16·04	46·03	58·00	1·0861	2·18	·078	·092	92·77	3·6	1,512	3,296	Moderate.
	Series ii ..	10,220	14·00	2·46	16·46	50·00	58·50	1·0853	2·20	·083	·037	94·83	3·8	1,690	3,718	Slight.
	Mean ...	...	13·32	2·93	16·25	...	...	...	2·19	...	...	93·80	..	...	3,507	...
B.H. 10(12)...	Series i ...	18,350	29·19	4·15	33·34	17·72	61·00	1·0951	2·41	·066	·104	93·41	2·7	3,642	8,775	Slight.
	Series ii ..	20,673	32·30	3·78	36·08	14·61	62·50	1·0924	2·36	·071	·079	94·02	3·0	4,140	9,770	Slight.
	Mean ..	...	30·75	3·96	34·71	...	...	...	2·39	...	..	93·72	...	...	9,273	...

* Badly eaten by Rats.

TABLE XLII.—CLIFTON HALL PLANTATION.—SACKEY FIELD

Second Ratoons. 1921—1923.

Name or No. of cane.		No. of canes per acre.	Weight in tons per acre.			Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice.						Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marrasmius sacchari*, Wakker.	Presence of insect pests.	
			Canes.	Tops.	Produce.			Sp. Gr. 30°C./16·6°C.	Lb. per gallon of Saccharose.	Lb. per gallon of Glucose.	Lb. per gallon of Solids not sugar.	Quotient of purity.	Glucose ratio.				*Diapreps abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
W. Transparent	Series i ..	24,447	27·69	4·93	32·62	20·19	63·50	1·0782	1·87	·139	·131	87·38	7·4	3,653	6,831	Bad.	Free.	Free.
	Series ii ...	26,422	28·39	4·15	32·54	3·52	63·50	1·0826	2·14	·096	·014	95·11	4·5	3,730	7,982	Bad.	Free.	Free.
	Mean ...	...	28·04	4·54	32 58	...	...	..	2·01	...	...	91·25	. .	...	7,407	...	..	...
*B. 3922 ...	Series i ..	28,951	29·33	4·72	34·05	15·58	63·75	1·0826	2·01	·104	·136	89·34	5·2	3,868	7,775	Moderate.	Free.	Free.
	Series ii ...	16,201	15·45	3·11	18·56	13·62	61·50	1·0826	2·07	·066	·114	92 00	3·2	1,966	4,070	Slight.	Free.	Free.
	Mean ...	..	22·39	3·92	26·31	...	...	...	2·04	...	..	90·67	...	...	5,923	...	...	...
B. 6450 ...	Series i ...	25,028	29·29	4·54	33·83	5·80	63·20	1·0817	2·00	·093	·137	89·69	4·7	3,884	7,668	Moderate.	Free.	Free.
	Series ii ...	23,460	30·85	4·80	35·65	4·95	65·00	1·0835	2·12	·071	·089	92·98	3·3	4,146	8,790	Slight.	Free.	Free.
	Mean ...	...	30·07	4·67	31·74	...	...	...	2·06	...	..	91·34	...	...	8,229	...	...	...
Ba. 6032 ...	Series i ...	17,679	27·80	3·46	31·26	3·65	64·00	1·0809	2·01	·083	·117	90·95	4·1	3,686	7,411	Slight.	Free	Free.
	Series ii ...	16,258	26·56	3·56	30·12	5·36	63·00	1·0791	1·97	·063	·127	91·21	3·2	3,475	6,846	Slight.	Free.	Free.
	Mean ...	...	27·18	3·51	30·69	...	...	...	1·99	..	...	91·08	...	...	7,129	...	...	...
Ba. 7924 ...	Series i ...	23,170	30·59	4·28	34·87	5·01	63·50	1·0817	2·05	·083	·097	91·93	4·0	4,023	8,247	Slight.	Free.	Free.
	Series ii ..	23,925	33·57	4·36	37·93	3·88	64·75	1·0817	2·12	·074	·036	95·07	3·5	4,501	9,542	Slight.	Free.	Free
	Mean ..	...	32·08	4·32	36·40	...	...	...	2·09	...	...	93·50	...	...	8,895	...	...	...
*Ba. 12079 ...	Series i ..	31,474	35·10	5·34	40·44	5·54	60·50	1·0809	1 92	·179	·111	86·88	9·3	4,401	8,450	Moderate.	Free.	Free.
	Series ii ...	32,984	33·05	4·66	37·71	21·13	57·50	1·0817	1·98	·125	·125	88·79	6·3	3,936	7,793	Moderate.	Free.	Free.
	Mean ...	...	34·08	5·00	39·08	...	...	...	1·95	...	...	87·84	...	...	8,122	...	...	...
B.H. 10 (12) ..	Series i ...	21,021	31·16	4·92	36·08	3·31	62·00	1·0844	2·11	·089	·101	91·74	4·2	3,991	8,421	Slight.	Free.	Free
	Series ii ...	24,273	33·83	3·89	37·72	4·31	63·50	1·0870	2·22	·086	·064	93·67	3·9	4,427	9,828	Slight.	Free.	Free.
	Mean ...	..	32·50	4·40	36·90	...	...	...	2·17	...	...	92·71	...	...	9,125	..	...	...
B.S F. 12 (27) ...	Series i ...	25,725	31·58	4·66	36·24	4·51	61·50	1·0800	1·97	·093	·117	90·37	4·7	4,028	7,935	Slight.	Free.	Free.
	Series ii ...	23,983	33·91	4·80	38·71	3·63	64·00	1·0800	1·95	·083	·147	89·45	4·3	4,501	8.777	Slight.	Free.	Free.
	Mean ...	.	32·75	4·73	37·48	...	...	...	1·96	...	...	89 92	...	...	8,356	...	...	...

*Eaten by Rats.

TABLE XLIII.—SUNBURY PLANTATION:—LOWER FOUR PATH FIELD. 1921-1928.

Plant Canes.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of: Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests: *Diaprepes abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
W Transparent	14,880	21·47	3·87	56·00	1·0844	2·08	·069	·151	90·43	3·3	2,484	5,167	Bad	D.a.	P.s.
B. 67	16,992	22·69	0·85	63·00	1·0870	2·15	·069	·151	90·72	3·2	2,946	6,334	Moderate.	D.a.	P.s.
P. 423	17,712	19·65	6·00	53·50	1·0897	2·20	·066	·174	90·16	3·0	2,161	4,754	Moderate	D.a.	P.s.
B. 6450	15,504	15·24	2·79	60·00	1·0817	1·97	·096	·164	88·34	4·9	1,893	3,729	Moderate.	D.a.	P.s.
Ba. 6032	14,976	14·72	4·16	57·50	1·0791	1·90	·093	·167	87·96	4·9	1,757	3,338	Moderate.	D.a.	P.s.
Ba. 11224	12,048	11·79	3·98	53·50	1·0879	2·22	·089	·081	92·89	4·0	1,298	2,882	Bad.	D.a.	P.s.
Ba. 11403	14,304	14·08	2·35	55·50	1·0879	2·17	·057	·163	90·80	2·6	1,609	3,492	Bad.	D.a.	P.s.
Ba. 11569	13,152	17·31	5·47	54·00	1·0835	2·03	·100	·150	89·04	4·9	1,933	3,924	Moderate.	D.a.	Free.
Ba. 12079	18,240	20·08	5·00	53·00	1·0809	1·83	·156	·221	82·81	8·5	2,205	4,035	Moderate.	D.a.	P.s.
B.H. 10 (12)	15,168	17·08	9·49	57·00	1·0924	2·33	·061	·119	92·85	2·6	1,996	4,651	Moderate.	D.a.	Free.
F.S.F. 12 (50)	17,280	20·10	2·77	57·50	1·0765	1·66	·250	·180	79·43	15·1	2,405	3,992	Slight.	D.a.	P.s.

TABLE XLIV.—HAMPTON PLANTATION :—UPPER NAT VALLEY FIELD. 1921—1923.

Plant Canes.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	NORMAL JUICE. Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of Saccharose.	Lb. per gallon of Glucose.	Lb. per gallon of Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests. *Diaprepes abbreviatus*, Linn.	Presence of insect pests. *Phytalus smithi*, Arrow.
W. Transparent	17,904	30·79	3·75	56 00	1·0809	1·98	·083	·147	89·59	4·2	3,574	7,076	Bad.	Free.	P.s.
B. 268	19,824	36·96	15·74	60·00	1·0826	2·06	·068	·122	91·56	3·3	4,589	9,453	Slight.	D.a.	P.s
B. 2001	17,520	21·26	14·52	56·00	1·0844	2·06	·083	·157	89·57	4·0	2,459	5,066	Moderate.	D.a.	P.s.
B 6450	20,448	31·01	3·99	59·00	1·0853	2·13	·074	·116	91 81	3·5	3,776	8,043	Moderate.	D.a.	P.s.
B. 14761	18,960	29·14	2·78	55·00	1·0826	2·03	·078	·142	90·22	3·8	3,316	6,731	Moderate.	Free.	P.s
Ba. 2471	30,000	28·99	3·20	52·50	1·0853	2·13	·063	·127	91·81	3·0	3,142	6,692	Moderate.	Free.	P.s
Ba. 6032	18,528	36·30	7·77	59·50	1·0765	1 88	·074	·136	89·95	3·9	4,494	8,449	Slight.	D.a.	P.s
Ba. 8069	18,624	33·66	10·57	59 00	1·0817	1·98	·066	·184	88·79	3·3	4,113	8,144	V. slight.	D.a.	P.s
Ba 11569	16,272	35·46	5·90	56·00	1·0870	2·17	·104	·096	91·56	4·8	4,093	8,882	Slight.	D.a.	P.s.
B.H. 10 (12)	20,688	25·50	7·19	54·00	1·0942	2·35	·089	·121	91·80	3·8	2,819	6,625	Moderate.	D.a.	P.s.
B.S.F. 12 (34)	15,280	19·64	30·37	58·00	1·0826	2·01	·096	·144	89·34	4·8	2,357	4,738	Moderate.	Free.	P.s

TABLE XLV.—HANNAYS PLANTATION—UPPER CUT HILL FIELD.

Plant Canes. 1921-1923.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30° C. 16·6° C.	Lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.
White Transparent	14,181	15·28	7·17	55·50	1·0835	2·08	·071	·129	91·23	3·4	1,753	3,646	Bad.
B. 67	18,731	22·69	2·58	61·00	1·0835	2·07	·096	·114	90·79	4·6	2,861	5,922	Slight.
B. 183	17,763	20·10	2·18	58·50	1·0809	2·04	·078	·092	92·31	3·8	2,436	4,969	Slight
B. 199	18,440	21·50	1·05	59·00	1·0835	2·07	·074	·136	90·79	3·6	2,622	5,428	Slight.
B. 6450	14,097	18·26	none.	58·00	1·0844	2·10	·061	·139	91·30	2·9	2,188	4,595	Slight.
Ba 6032	13,988	25·93	·69	59·50	1·0826	2·07	·069	·111	92·00	3·3	3,192	6,607	Slight.
Ba. 7924	12,390	24·09	none.	57·00	1·0809	2·05	·074	·086	92 76	3·6	2,846	5,834	Slight.
Ba. 8109	16,456	23·23	none.	54·50	1·0853	2·16	·125	·035	93·10	5·8	2,618	5,644	Moderate.
Ba. 11569	15,682	24·52	4·63	54·50	1·0879	2·23	·069	·091	93·30	3 1	2,752	6,137	Slight.
B. H. 10 (12)	13,649	19·99	none.	57·50	1·0997	2·56	·083	·067	94·47	3·2	2,341	5,993	Slight.

TABLE XLVI.—BRIGHTON PLANTATION:—WEST BUTTALS LINE FIELD.

Plant Canes. 1921–1923.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30° C. / 16·6° C.	Lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests. *Diopsis abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
W. Transparent	14,256	21·17	4·04	59·00	1·0853	2·20	·096	·024	94·83	3·4	2,578	5,672	Moderate	Free	P.s.
B. 67	15,552	24·13	1·54	62·00	1·0885	2·08	·069	·131	91·23	3·3	3,093	6,433	Slight.	Free.	Free.
B. 237	18,816	24·13	3·32	58·00	1·0870	2·17	·063	·137	91·56	2·9	2,834	6,258	Slight.	Free.	Free.
B. 263	17,856	27·83	3·76	58·00	1·0835	2·14	·083	·057	93·86	3·8	3,338	7,143	Moderate.	Free.	P.s.
B. 417	12,864	37·19	1·87	62·00	1·0791	1·99	·104	·066	92·13	5·2	4,788	9,528	Slight.	Free.	P.s.
B. 425	18,864	22·82	8·65	56·50	1·0844	2·14	·100	·060	93·04	4·7	2,663	5,699	Slight	Free.	Free.
B. 6450	29,592	28·01	none.	58·50	1·0817	2·03	·060	·140	91·03	3·0	3,393	6,888	Slight.	Free.	P.s.
Ba. 6032	14,352	27·86	none.	60·00	1·0800	2·04	·063	·077	93·58	3·1	3,467	7,073	Slight.	Free.	P.s.
Ba. 7924	15,168	26·16	1·58	56·50	1·0791	2·05	·066	·044	94·91	3·2	3,104	6,363	Slight.	Free.	P.s.
Ba. 8069	16,128	31·11	0·89	58·50	1·0817	2·03	·061	·139	91·03	3·0	3,769	7,651	Slight.	Free.	Free.
Ba. 8469	14,784	29·46	none.	56·50	1·0826	2·11	·068	·072	93·78	3·2	3,444	7,267	Slight.	Free.	P.s.
Ba. 11569	14,640	27·90	2·62	56·00	1·0844	2·17	·089	·041	94·35	4·1	3,227	7,602	Slight.	Free.	P.s.
B. H. 10 (12)	16,224	28·22	1·18	57·00	1·0906	2·32	·068	·082	93·93	2·9	3,304	7,665	Slight.	Free.	Free.

TABLE XLVII.—VAUCLUSE PLANTATION:—ALLEY HOUSE FIELD.

Plant Canes.

1921–1923.

Name or No. of cane.	No. of canes per acre.	Canes, tons per acre.	Per cent. by number of rotten canes.	Per cent. juice by mill.	Normal Juice. Sp. Gr. 30° C./16·5° C.	Normal Juice. Lb. per gallon of Saccharose.	Glucose.	Solids not sugar.	Quotient of purity.	Glucose ratio.	Gallons of juice per acre.	Saccharose, lb. per acre.	Prevalence of *Marasmius sacchari*, Wakker.	Presence of insect pests. *Diapreps abbreviatus*, Linn.	*Phytalus smithi*, Arrow.
W. Transparent	19,283	28·73	2·80	59·00	1·0729	1·91	·083	·007	95·50	4·3	2,923	5,583	Bad.	Free.	Free.
B. 67	20,615	41·37	none.	63·60	1·0756	1·95	·071	·049	94·20	3·6	5,480	10,686	Slight.	Free.	Free.
B. 6450	20,905	40·05	3·33	60·50	1·0721	1·85	·063	·057	93·91	3·4	5,063	9,366	Slight.	Free.	Free.
Ba. 6032	15,795	35·65	2·57	62·00	1·0694	1·78	·083	·037	93·69	4·7	4,636	8,252	Slight.	Free.	Free.
Ba. 7924	20,068	33·04	2·08	58·00	1·0703	1·83	·074	·026	94·82	4·0	4,010	7,338	Slight	Free.	Free.
Ba. 11224	18,524	29·24	none.	57·00	1·0791	2·08	·066	·014	96·30	3·2	3,459	7,195	Slight.	Free.	Free
Ba. 11569	20,266	29·97	none.	58·50	1·0800	2·05	·096	·034	94·04	4·7	3,636	7,454	Slight.	Free.	Free.
Ba. 12079	27,990	31·37	none.	59·50	1·0694	1·76	·081	·059	92·63	4·6	3,909	6,880	Slight.	Free.	Free
B.H. 10 (12)	20,150	40·88	none.	59·00	1·0703	1·78	·096	·054	92·23	5·4	5,048	8,985	Slight.	Free.	Free.
B.S.F. 12 (24)	25,551	39·92	2·73	65·00	1·0658	1·68	·074	·056	92·82	4·4	5,454	9,163	Slight.	Free.	Free.